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A Paper
ON
OBSTETRICAL ERRORS*

BY

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It is important that the art of obstetrics should be as highly organized as possible. If engaged for a case we must assume full responsibility and not relegate to a nurse or midwife those matters which are essentially medical and obstetrical. Again, if we are usually called in by a certain midwife and find a condition which could have been recognized, and possibly prevented, at an earlier stage, then it is our duty to educate that midwife to the value of closer co-operation. One of the biggest errors made, and still being made, by the profession is that of allowing obstetrics to drift into the hands of midwives, clinics, and whole-time officers. Some of this may be inevitable and even desirable, but doctors are losing the supervisory and consultative interest in this work to the detriment of their practices. The backbone of a successful practice is midwifery, followed by child welfare.

Ante-natal Care

The supervision, manipulations, and decisions concerned with ante-natal care form one of the most fascinating studies in medical art. The absence of this care is a big error. The multitude of normal labours which occur without such supervision tend to belittle its value and to make people somewhat sceptical. Sooner or later a most devastating tragedy will shock the most casual in this regard. Such comparatively simple and not infrequent matters as the recognition of an occipito-posterior, a breech in a primipara, or a contracted pelvis which invites obstruction may, when properly dealt with, make all the difference between a triumphant success and maternal and foetal exhaustion, bruising, and even death. Ante-natal care is not merely safeguarding the lives of the mother and her child, but also making certain that they will emerge from their joint experience—the confinement—as undamaged from wear and tear as possible. What we have to aim at is that every baby is presenting head first as a polar lie and with its back anterior, and that the relation of the head to the pelvic cavity shows no unfavourable disproportion.

Occipito-posteriors are best dealt with by applying a pad over the child's back, and it is fixed in position with a tight binder. The bladder and bowels are kept empty, and the patient remains in bed for twenty-four hours. If the procedure fails, repeat it at the next week-end; and if it still fails, then apply it at the onset of labour.

In breech cases the error is often in diagnosis: the buttocks are mistaken for the shoulders. Palpate for the head at the fundus, and dip the fingers into the pelvis behind the pubic bones to feel for a deeply engaged head. Finally, make a vaginal examination. By one or other of these means it should be possible to arrive at a diagnosis. In cases of breech with extended legs, the lower pole of the foetus feels very like the foetal head. If faced with a breech presentation in a primipara ask yourself "Why is it presenting as a breech?" and exclude the presence of a contracted pelvis. If the pelvis is badly contracted leave alone and arrange for a Caesarean section, but if normal or doubtful then do a version and test the head to the brim. In carrying out a version always lubricate the abdomen with soap or oil; this makes the version easier. If failure results then try under anaesthesia. If there is still failure, then by means of external measurements and a careful estimation of the pelvic capacity per vaginam decide whether or not there is sufficient room for the breech to come through, always allowing for manipulations for possibly extended arms or legs. Failure of judgement in this respect will end in a very difficult extraction with a stillborn child, or, in gross cases, in retention of the head above the brim. Lubrication of the hands, gloved or otherwise, with ethereal soap makes the corrective manipulations during delivery much easier.

Contracted pelves are usually contracted at the brim or throughout. Some are only contracted at or towards the outlet, and they are the more treacherous, as the head engages well and gives an appearance of normality, while late in labour the moulding and caput may suggest proximity and invite a delivery with forceps. Pelvic measurements, therefore, should always be taken of the outlet as well as of the brim. With the more common types of contracted pelvis the head is high and even overriding the brim. This in a primipara is always suspicious, as the head is usually deeply engaged for some weeks before term. Measure the pelvis and test the head to the brim, if necessary under anaesthesia. With a reasonable degree of care it is possible to divide cases into those that *will*, those that *won't*, and those that *may* come through. The first are normal, the second are for Caesarean section, and the third group should be as small as possible. Such a thing as a trial labour should not be allowed to occur outside a home or hospital, unless expert assistance is available. There is a place for induction of premature labour, but only in cases with minor degrees of contraction, occasionally in primiparae, and rarely in atypical forms of deformity.

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Absence of ante-natal care may allow the toxaemia of pregnancy to produce the kidney of pregnancy and its major crisis, eclampsia. Regularity of the bowels, routine urine testing every fourteen days till the last weeks, when it is done weekly, and, most important of all, encouraging the patient to report any unusual symptom will modify this danger. Oedema is not, as commonly believed by the laity, due to pressure, but is really a manifestation of renal deficiency. Don't hesitate to starve an albuminuric patient. Fluids are essential, and food may be withheld for a week or more with impunity. Fruit juice and stewed fruit and sugar may be given after a period and before proteins are added to the diet. In actual practice the routine testing of urine specimens would be best dealt with by the nurse if it can be so arranged.

The utmost need for ante-natal care is in the case of primiparae, as their first pregnancy and labour is a trial of their pelvic girdles and their metabolism. Multiparae must be watched carefully also. Their kidneys may be damaged, their lax uteri may allow malpresentations. Four such, with previously normal histories, arrived at a hospital with ruptured uteri. They had malpresentations which had been corrected by version. Three of them died. The malpresentations or the versions should have been dealt with earlier.

LABOUR

The dramatic obstetrics which impressed us as students, the difficult versions, embryotomies, decapitations, and so on, were largely owing to the absence of organized ante-natal care. The contrast between a timely Caesarean section in a case of badly contracted pelvis and a similar case dealt with late in labour *per vias naturales* requires no comment.

A great error during labour is to withhold chloroform. The patient's cries are unnerving the household, the atmosphere is tense, the doctor may be urged to terminate labour. Delivery may be the worse possible treatment in such a case. The patient, a primipara, may be only half-way through the first stage of a perfectly normal labour. Put her and the family to sleep by administering chloroform to the patient. Do not forget to do this when called in by a midwife to a case which you have never seen before. Quieten the household, get the history, and make a careful abdominal examination; then wash up and make a careful internal examination, and arrive at your final decision after sizing up the general condition of the mother and the child. Morphine may be given, and also bromides and chloral; but morphine should not be given if delivery is likely to take place within four hours of the injection.

Failed forceps, when analysed, are divisible into those due to errors of omission and those due to errors of commission. The former are neglect of ante-natal care, and the latter are forceful attempts to anticipate natural processes or incorrect attempts to remedy the neglect of ante-natal care. Cases admitted to hospital with the os uteri one-third or one-half dilated are merely given time to complete the natural process. The injection of pituitary extract is open to criticism. Having known of it being given to primiparae, and even primiparae with badly contracted pelves, I believe that the following is fairly sound advice: never give pituitary extract until you are fully conversant with obstetrics, and never to a primipara. Reserve its use for multiparae with a fully dilated os, and a head well engaged or low down, when it is merely a question of pushing or gently pulling the head over the perineum. Always dilute the extract and inject it gradually under anaesthesia. Another common cause of failed forceps is failure to recognize that the baby's head in an occipito-posterior case is not yet in the antero-posterior of the outlet. It is not always easy to detect, especially if there is much of a caput. It is still more difficult if the patient is lying in the left lateral position. Great help is obtained by delivering these patients in the cross-bed position, using either Clover's crutch or the obstetric straps to obtain the lithotomy position. The exact relation of the head to the outlet is then easily detected by inserting the left hand in the vagina in order to palpate it thoroughly, or even to feel for the ears. Once the condition is recognized, rotate into the correct position and apply forceps, but if impossible to correct manually then correct with the forceps and reapply them, after correction, before extracting the head. Another error is to attempt extension of the head with the forceps before the occipital protuberance on the child's head has descended below the symphysis pubis: feel for it. In the third group of failed forceps are degrees of pelvic contraction. Gross cases are obvious by abdominal examination alone. Moderate cases require a careful examination under anaesthesia of the pelvic girdle and foetal head. Ask yourself what has already been done and what remains to be done. The only possible alternative at this stage, provided the child is alive, may be a Caesarean section or, occasionally, a version. Do not be misled by the small size of the os in bad cases of contracted pelvis into imagining that the patient is still in the first stage. The os may never dilate any further owing to non-descent of the head.

It is a mistake to allow tears to occur, to fail to repair those that do occur, and to admit that they have occurred. The vexed question of tears is so bound up in the public mind with neglect that it is useful to be frank with ourselves and admit that they do arise in a very large number of primiparae. Much can be prevented, much is inevitable. The really important point is to realize when a tear is likely to be inevitable, and to anticipate it by a timely episiotomy, which should be median in position. The indication for this is a tense ostium vaginae which has produced a secondary caput on the child's head, and where, with each pain, there is blanching of the vestibule. This may, if neglected, lead to two sequels: a bursting tear of the perineum, vagina, and labia, and such laceration of the sphincter urethrae as to result in laxity and incontinence of urine later. Failure to repair tears adds to the risk of puerperal sepsis, and possibly, later, of prolapse developing. As a gynaecologist as well as an obstetrician, and knowing how uniformly well properly repaired lacerations heal, I cannot but believe that, whether the blame rests with the profession or, more likely, with the midwives, there is simply no attempt to repair much vaginal trauma. One error might be excused—namely, failure to recognize that an intact perineal surface is associated with concealed lacerations. Always examine for them. Repair cannot, with rare exceptions, be accomplished by means of silkworm-gut sutures; they produce an external appearance of approximation, but they rarely manage to produce actual anatomical apposition. In order to effect this catgut should be used, either buried or superficial. Repair the vaginal tube, repair the rectal tube and sphincter when necessary, bring the levators together between them, and finally repair the skin edges. Tell your nurses not to count the stitches or to admit tears. Tell them to admit bruising; the patient and her husband will thoroughly understand, and their minds be peaceful. This is not duplicity, it is common sense. A "tear" sounds horrible, a "bruise" sounds reasonable. When the baby has arrived examine at once for tears. If trivial, repair at once with catgut; but if severe, then wait until the placenta has arrived and do a proper and deliberate repair in the cross-bed position.

Another error is mismanagement of the third stage. The main danger is at night when time hangs heavy and one wants to "get it over." We are all human; but

unless an anaesthetic has been administered, then it is useful to note the time of delivery and to allow at least fifteen to twenty minutes to elapse before worrying about the placenta. Leave the uterus alone, or at most feel it from time to time. It will not let you down. If an anaesthetic has been given, then the uterus *may* let you down, so it is best to massage it gently and note when the placenta has left. Should it be necessary to go in for the placenta, then always give an intrauterine douche afterwards. Failure to do this is asking for sepsis. Never allow a binder to be applied until at least one hour after delivery, and palpate the uterus from time to time.

PUERPERIUM

The first three days are probably the most important. Get the bowels open early. An enema is an adjuvant, not an essential. Opening medicine should be given in twenty-four hours' time or earlier. Always be on the look out for sepsis. Influenza, pneumonia, debility, yellow atrophy of the liver, and breasts are often provided as an explanation for a sequence of events which are in reality due to septic processes. The headaches, shivers, malaise, and temperatures of a septic process are often attributed to influenza if it is prevalent. Chest conditions of septic origin are often manifest within three days of delivery, and to the inexpert might be believed to be of accidental origin. Rapidity of pulse, with practically no other symptom than increasing weakness, can be due to hyperacute sepsis, but may be attributed to shock or haemorrhage. Jaundice, with only moderate pyrexia, or even in the absence of pyrexia, can be due to a hyperacute haemolytic streptococcal infection and not to hepatic derangement. Septic temperatures and engorgement of the breasts are common on the third day. Always be on your guard about sepsis ; always suspect it ; and always look at the perineum and lochial discharges. Never give a vaginal douche without clear proof of vaginal sepsis. In the vast majority of cases it is merely perineal sepsis : therefore arrange for local swabbing with peroxide, 20 volumes, three times a day, followed by a jug douche of boric or weak lysol ; and this is all that is needed. If there is vaginal infection apply similar treatment to the vagina. Very occasionally the uterus is to blame, but only rarely in the first instance. The difficulty of adequate nursing in outlying areas is obvious. The fact remains that such may be essential.

Three errors remain to be dealt with, although there are many others. Lysol, or any other such substance, is quite useful as an inhibitor of bacterial activity. It does not, except in its pure state, act as a reliable antiseptic. The only reliable antiseptic is a preparation of mercury, such as the perchloride (1 in 1,000) or the biniodide (1 in 1,000). Swabs, hands, and individuals passing from case to case can never be efficiently disinfected if they depend on lysol. With rare exceptions, never examine a patient when she comes to book you. She is nervous and self-conscious, especially if she is a primipara. Internal examinations are a rarity under modern conditions of ante-natal care. Do not tell a woman that she must never have another baby unless such an edict is based on the soundest medical, surgical, or obstetrical grounds. Such advice—in cases met with—has rarely been justified. The patient fears falling pregnant, and is panicked if she does. If such advice is given, whether justified or not, it is strangely out of place that no further advice follows. Finally, we must realize that the very essence and ethics of our existence are based upon the conservation of life itself. Therefore, safeguard the mothers with ante-natal care. Remember, when you are called in to see a case, the importance of time, sedatives, and careful decisions in labour, and always be on the look out for sepsis during the puerperium.

PANCREATIC LITHIASIS

BY

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CAPETOWN

Pancreatic lithiasis is a rare condition ; the symptomatology is bewildering and the diagnosis beset with many difficulties. A review of the history and symptomatology may therefore prove interesting inasmuch as it may enable a diagnosis to be made more frequently in the living. Although pancreatic lithiasis was first observed by Regnerus de Graaf in 1664, its great rarity is such that nearly two and a half centuries later (in 1903) Lazarus was able to collect only eighty such cases described in the literature. In most of the cases the calculi were found at necropsy ; in some the diagnosis was made of chronic pancreatitis of probable calculous origin, and in several instances the diagnosis was only made at operation (Lindsay, Link, Seeger, Hartman, etc.). In recent years, however, with the aid of roentgenology, a few more cases have been described, so that the condition is not quite so rare as had been supposed. Out of 11,000 necropsies at Guy's Hospital there were three cases only, and Opie in 1910 found two among 1,500 necropsies at the Johns Hopkins Hospital, all in elderly men. Rindfleisch, in 2,000 necropsies at Königsberger Medical Clinic, found only three cases. In the Mayo Clinic, where at every laparotomy of the upper abdomen the pancreas is palpated, eight cases have been discovered in fifteen years. Pancreatic calculi occur more frequently in men than in women : this is also consistent with the observation that chronic pancreatic disease is much more frequent in males than in females. Among the fifty-seven cases collected by Lazarus, forty-seven were in men and ten in women, and of these, thirty-seven were between the ages of 30 and 50 years.

The number of calculi varies greatly : usually five to ten are present ; in rare instances there is a solitary calculus, but as many as 300 have been found (Lancereaux). A characteristic of multiple pancreatic calculi is that they are usually not faceted (unlike gall-stones). They vary in size from mere sand to masses the size of a walnut, and may be smooth or rough, soft or hard, and white, brown, or yellow. They consist chiefly of calcium carbonate or calcium phosphate, or even occasionally of calcium oxalate, which is somewhat surprising, as the pancreatic juice does not contain these salts, and is strongly suggestive of an inflammatory aetiology. This fact is, however, of great importance, as it is the lime salts which make the stones opaque to *x* rays. Rarely they consist of organic substance, and occasionally of lime salts, together with organic protein debris. It is of interest to note that pancreatic calculi have also been repeatedly found in animals, particularly in cattle.

Calculi probably never form in a healthy pancreas. All the evidence points to primary inflammatory changes in the ducts and in the parenchyma of the gland, with occlusion of the ducts (stasis) or invasion by bacteria as a secondary factor. Giudiceandrea demonstrated the colon bacillus with numerous long bacilli in pancreatic calculi, while in a second case he found numerous cocci and bacilli in the centre of a stone. On the other hand, Lindsay could not discover any bacteria in his calculi.

SYMPTOMS

Pancreatic lithiasis may be unaccompanied by noteworthy local symptoms indicating disease of the organ. Lazarus gave an account of such a case, in which death occurred with diabetes and pulmonary tuberculosis. At necropsy the pancreas was found to be converted into a

fibrous sac, and, notwithstanding the fact that the duct contained numerous jagged concretions, there had been no pain. In another instance (Wolf and Tietze) a man, 45 years old, who had never had any colic—in fact, no real pain at all—complained of an insatiable hunger and the passage of bulky stools. On *x*-ray investigation he was shown to have pancreatic calculi. Nevertheless, the most important and frequent symptom is pain. It is usually epigastric, and may be dull and continued, or intermittent, occurring in colic-like attacks, similar to those of gall-stones. In the case I described, a man, aged 37, complained for some four months of pain in the epigastrium, which radiated to both sides of the abdomen. The pain was dull and practically continuous, and was worse soon after food: it gradually became more severe, so that he was afraid to eat. He had no attacks of colic. Attacks of colicky pain have been characteristic of many of the cases reported (Lacoutre and Charbonnel, Einhorn, Pitt). Sometimes it is agonizing in character, and may be associated with vomiting, hiccup, tachycardia, cold sweat, and collapse. Chills and fever may at times occur. Severe attacks of colic-like pain may accompany the passage of calculi. In a case of Leichtenstern's, symptoms of biliary colic without jaundice were followed by the passage in the faeces of three concretions, the largest the size of a pea and composed of calcium carbonate without traces of bile pigments or cholesterol. In some cases pain has been localized in the epigastrium and under the left costal margin in the nipple line and radiating to the left side of the spine or the left shoulder-blade, or there may be, as Seeger has stressed, a left lumbar radiation. It is interesting to note that many of the cases recorded within recent years have had no typical colic attacks, but more of a dull continuous pain in the epigastrium, made worse some ten minutes after food (Sennett, Link, Orth, etc.), or simply a feeling of pressure in the upper abdomen (Meyer). Although the attacks of pain associated with the passage of pancreatic calculi are often accompanied by vomiting, which may be quite severe, in some cases there were attacks of colicky pain but no vomiting. Lindsay's patient had abdominal pain about half an hour after food, beginning as an ache in the region between the gall-bladder and the umbilicus, culminating in paroxysms of severe pain, doubling him up, and radiating to the left. The paroxysms were accompanied by nausea, but he never vomited. In my case there had also been no vomiting.

The passage of a pancreatic calculus through the diverticulum of Vater may cause temporary jaundice. A patient of Leichtenstern's suffered for two years attacks of a severe abdominal pain and vomiting, and on one occasion jaundice; at operation no gall-stones were found, and necropsy revealed numerous pancreatic calculi. In my patient there was no jaundice until shortly before death. In several instances a diagnosis of pancreatic lithiasis has been made during life from the passage in the faeces of calculi composed of calcium carbonate or phosphate, and free from bile: Leichtenstern made his diagnosis in this way. In a case of Minnich's, soft, friable concretions, as large as a cherry pip and containing carbonate and phosphate of calcium, were found for twelve days after an attack of colic.

Glycosuria has been a symptom of pancreatic lithiasis in a large proportion of the recorded cases. Lancereaux reports twelve cases in his series of forty; Lazarus, thirty-six in his series of eighty. Pancreatic lithiasis may exist for years without diabetes, and in the case described by Caparelli glycosuria appeared six years after the first attack of colic. Since glycosuria is not the result of occlusion of the pancreatic ducts, but of consequent chronic interlobular inflammation, diabetes results only after the lesion has become far advanced and has injured the islets of Langerhans (Atkinson and Hirsch). In Lindsay's second case the destruction of the pancreas was advanced and the pancreatic juice did not digest protein and fat at all, and starch only slowly. The urine contained sugar and acetone bodies in small amount. In his first case there was no glycosuria, and the pancreatic fluid showed rapid starch and slow protein and fat digestion. In Link's case there was also no glycosuria, and at operation, when he removed the calculi, he could demonstrate that there was little damage to the gland substance, although some chronic interstitial pancreatitis, chiefly of the interlobular type, was present. My patient also had no glycosuria at the time he was examined.

Changes in the stools due to disturbance of the pancreatic function are occasionally noted, but are not common. Fatty stools (steatorrhoea) were present in ten of the cases collected by Lazarus. Azotorrhoea, shown by the presence of undigested muscle fibres in the faeces, is even less common than fatty stools, and in only one of the eight instances in which this accompanied well-authenticated pancreatic disease was the pancreatic lesion caused by calculi. In my case the stools examined were certainly not "pancreatic fat stools," and showed no steatorrhoea or azotorrhoea. The loss of weight in association with pancreatic lithiasis in the absence of diabetes or disturbances of digestion is probably referable, in part at least, to inflammatory changes or other complications of the disease.

DIAGNOSIS

Although Friedrich stated that it was impossible to diagnose pancreatic lithiasis, there are now several cases on record in which the diagnosis has been made during life. The reason that diagnosis causes such great difficulty is, as Moynihan points out, because the recorded cases are so few as to leave the symptomatology indefinite. As, however, cases of pancreatic calculi have been diagnosed, one has to reckon with the possibility of such diagnosis, even if it is rare. In 1906 Zesas collected in the literature seventy cases of pancreatic calculi, of which only seven had been diagnosed during life. Since then other cases have been reported, especially during the past few years, in which the diagnosis has been made by radiology.

In cases of colic, particularly in those which make one think of possible pancreatic affections, the stools should be carefully examined for concretions, especially for the sandy formations which readily pass through the sieve, as larger concretions are frequently absent. In fact the diagnosis has been repeatedly made from these stone formations (Minnich, Glaessner, Leichtenstern, and others). No conclusion can be drawn from the chemical examination of organic stones, but from the much more common inorganic calculi—notably those chiefly consisting of calcium carbonate—and from the absence of faceting the diagnosis becomes very probable, although it is still possible for such concretions to have formed in the bowel.

Within recent years several cases of pancreatic calculi have been diagnosed by means of radiography (Meyer, Lindsay, Jacquelin and Quénu, Morrison and Bogen, Zukschwerdt, Gross, Wolf and Tietze, Haudek, Friedrich and Hoesch, Orth, Ohnell, Sennett), and in some instances it has been possible to confirm the diagnosis at either operation or necropsy. To demonstrate the fact that pancreatic calculi show up on a skiagram, Assman *x*-rayed a cadaver in which a pancreatic tumour was found containing calculi in the ducts, and obtained quite definite shadows in the photograph. In a case of Pforringer's a diagnosis of renal calculus was made in a patient who had suffered for some time from severe, sudden, colicky pains, which were getting more frequent, were localized in the right side of the abdomen, and were associated with vomiting. There was no jaundice. On

x-ray examination an intense shadow the size of a cherry was seen in the right renal region, although lying somewhat nearer the vertebral column than usual. The patient was operated on, but died from a post-operative haemorrhage. Post mortem a roundish concretion, which coincided both in size and in shape with the shadow seen in the skiagram, was found in the pancreatic duct. In the case of Ackman and Ross's, shadows were noted at the level of the first and second lumbar vertebrae. These were thought to be calcified glands, but on post-mortem examination were identified as pancreatic calculi. In Lacoutre and Charbonnel's case and in one of Hartman's cases, after pancreatic calculi had been removed at operation, the post-operative *x*-ray examination revealed stones which had been overlooked. On the other hand, Glaessner has shown that in a case in which he had diagnosed pancreatic calculi because of the finding of concretions in the faeces and the suggestive typical clinical course of the case, the *x*-ray diagnosis was negative, in spite of the fact that the calculi consisted mainly of calcium carbonate. Also, in Hartig's case the *x*-ray findings were negative, but stones were found at operation. Moreover, the interpretation of shadows found in the upper abdomen is often difficult, so that before making a diagnosis of pancreatic calculi it is necessary to exclude the possibility of the shadows originating in the kidney, gall-bladder, or calcified lymph glands. If there is any suspicion of pancreatic calculi the *x*-ray examination and the searching for and the chemical examination of any concretions in the stool are of prime importance in diagnosis.

In addition, any possible disease of the pancreas should be carefully investigated. The clinical course of the case should be watched, especially as regards colicky pains, jaundice, composition and appearance of the stools, examination of the urine, salivation, etc. If the question of a renal calculus should arise it should be excluded by cystoscopy and ureteral catheterization. If cholelithiasis has been diagnosed and the patient operated upon the pancreas should be examined, particularly if gall-stones are not found, although even in the presence of gall-stones the pancreas should be carefully palpated if there is any suspicion of pancreatic disease.

TREATMENT

Statements concerning the treatment of pancreatic lithiasis are necessarily vague, since few cases have been recognized during life. Glaessner, however, claims to have cured his two patients by medical means—namely, a ten-days' course of olive oil followed by a course of Carlsbad salts, since when his patients have kept perfectly well. The efficacy of this form of treatment is, however, open to grave doubts. In most cases surgery seems the best hope, and cases of operative removal of the calculi have been not infrequently recorded in the literature (twenty-six in all, according to Seeger), and in most cases with excellent results. It must be noted that, even at operation, stones may be missed owing to the extensive fibrosis making palpation of the pancreas difficult. Rink and Sistrunk have called attention to a peculiar crepitus that often exists when there are multiple stones.

CONCLUSIONS

1. The symptoms of many of the cases described are diverse. Pancreatic lithiasis may be unaccompanied by noticeable local symptoms indicating disease of the organ, and, on the other hand, very definite symptoms may show that the pancreas is diseased.

2. In many of the cases recently diagnosed by radiology the absence of colic is a noteworthy feature. In the earlier cases, which were mostly diagnosed by the passage of inorganic calculi following attacks of colic resembling biliary colic, these attacks were stressed as a feature in its symptomatology.

3. Radiology, especially if carried out in conjunction with the other methods of investigation outlined above, offers the best means of diagnosing an undoubtedly very rare condition.

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ACUTE PSOAS ABSCESS

BY

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STAFFORD

The great majority of psoas abscesses are chronic in nature, and usually secondary to a tuberculous focus in the vertebral column or pelvic bones. A certain number, however, are more acute. The fact that the correct diagnosis is seldom made in these cases seems to be due mainly to the possible existence of the condition not being realized ; for the clinical signs are constant and characteristic. Although the older textbooks, such as Erichsen's *Surgery*, contain a fairly comprehensive list of the possible sites of origin of psoas abscesses other than the spine, and the signs which may be of help in their differential diagnosis, most of the modern textbooks give the impression that the condition is practically always associated with spinal disease. Some of them do not even mention any other cause, while others briefly refer to the possibility of the abscess being secondary to lesions such as suppurative appendicitis, perinephritis, or sacro-iliac disease. The references in the literature are scanty, but there are indications that this is due more to the condition being overlooked than to its rarity.

Baer, Bennett, and Nachlas[1] discuss forty-two non-tuberculous psoas abscesses seen at an orthopaedic department. Of these, twenty-four were seen in four years. They state that the cases were incorrectly diagnosed by good clinicians and sent to an orthopaedic surgeon, because it is generally believed that such abscesses must be due to disease of the spinal column or the skeletal portion of the pelvis. A summary of the possible primary lesions is given, and special attention is drawn to those abscesses following suppuration in the retroperitoneal lymph nodes, but there is no indication of the number which were thought to have arisen in this way. Behrman[2] describes four cases seen at a children's hospital during one year. Of these, two were operated on for acute appendicitis ; one was diagnosed as acute arthritis of the hip and the other as Pott's disease. He suggests that the abscesses might be secondary to lower pole perinephric suppuration, since the arrangement inferiorly of Gerota's fascia readily permits spread of an infective process downwards. He quotes Israel[3] and Wolkow and Delitzen[4] in support of this view, admitting, however, that the only positive evidence was the presence of a raised cellular count in the urine of three of his cases. One case of staphylococcal psoas abscess is reported by Rocher and Malaplate.[5] A thorough examination of this patient disclosed no primary infective focus, and although there is no mention of a blood culture having been done, these writers appear satisfied that the condition arose in the course of a staphylococcal septicaemia. They mention that before operation it was undecided whether the abscess was primary or due to spread from a perinephric focus, but no evidence of the latter was found during the exploration. Damm[6] also described a case of acute psoas abscess in which the origin could not be traced from the vertebral column or sacro-iliac joint. The author did not consider that it was of a tuberculous nature, but the actual bacteriological cause does not seem to have been established.

CASE RECORDS

The following three cases were seen by myself during the course of one year, and in each case the abscess appeared to be definitely pyaemic in type.

CASE I

F. Q., female, aged 1 year 3 months. Admitted to hospital on February 4th, 1932. The child was very ill. A superficial abscess was found over the upper part of the back. This was drained, and a haemolytic streptococcus was cultured from the pus. On February 12th the left hip was found to be in fixed flexion of about 75 degrees ; other movements were normal. A radiogram of the spine, pelvis, and hip showed no bony abnormality. A left psoas abscess was opened and drained through an inguinal incision on February 15th. Haemolytic streptococci were cultured from the pus. A few days later a superficial abscess developed over the left pectoral muscle, and a similar organism was recovered from the pus. The abscesses cleared up satisfactorily after drainage, but the child continued very ill with a typical septicaemic temperature, which only gradually subsided after about four weeks. The hip remained flexed, and a radiogram taken on March 17th showed a separation of the upper epiphysis of the left femur. There were no signs of an acute infection of the joint. The limb was put up in a plaster-of-Paris splint, and a satisfactory position was obtained. The patient then developed measles, but made a good recovery.

CASE II

S. C., female, aged 11 years. Admitted February 11th, 1932. Febrile attack five weeks before, followed by stiffness and pain in the right hip. State on admission: temperature 101.4°, pulse 108, pale and ill. Right hip held flexed nearly to a right angle ; other movements at the hip were normal. Blood count: 20,000 white blood cells, 80 per cent. polymorphs. Urine contained a trace of albumin ; there were no other abnormal constituents. A radiogram of the spine, pelvis, and hip-joint showed no bony change. On February 18th a right psoas abscess was drained through an inguinal incision. *S. aureus* was cultured from the pus. Discharged on March 3rd. General condition very good. Hip straight.

CASE III

B. B., male, aged 62 years. Admitted February 12th, 1933. No previous illness of importance. Indefinite onset of pain in the right groin two weeks before, which had become steadily worse. For the last few days the patient had been unable to straighten his right hip. A swelling had been noticed in the right groin for three to four days. State on admission: general condition fairly good ; temperature 99°, pulse 100. Fixed flexion of the right hip to about 40 degrees. Other movements of the hip were normal. A rather hard mass could be felt in the right iliac fossa running down almost to Poupart's ligament. No definite fluctuation was obtained, and the mass was at first thought to be enlarged glands. Nothing abnormal was found in the rectum or on examination of the spinal column. A radiogram of the spine, pelvis, and hip showed no bony abnormality. On February 18th fluctuation was obtained in the swelling in the right side, and a right psoas abscess was opened through an inguinal incision after aspiration with a needle. *B. pfeiffer* in pure culture was recovered from the pus. Discharged on March 4th with no symptoms. Flexion deformity of the hip quite cleared up.

Note by Dr. J. Menton

"The isolation of *B. influenzae* from the pus of this psoas abscess is interesting, especially in view of the fact that your patient does not give a history of recent influenza. I have encountered instances where the same organism appears to have caused meningitis, and in several of these cases the meningitis seemed to be the outstanding lesion, and no evidence of general infection was forthcoming. I am stressing these points in view of the present controversy on the role of this organism in the cause of disease."

DIAGNOSIS

The correct diagnosis of an acute or subacute psoas abscess should be fairly simple if the possibility of the condition is borne in mind. As a rule the patient has been ill for at least some days before the abscess appears, and complains of pain on the affected side running down into the groin or leg. This pain may be neuralgic in character and due to involvement of the lumbar nerves running in intimate relation to the muscle. The outstanding clinical sign is fixed flexion of the hip, and the degree of flexion is considerably greater than is likely to be found with simple spasm of the psoas from the irritation of a neighbouring inflammatory lesion, such as an acute appendicitis. Occasionally this sign may be present with an acute inflammation of the muscle without abscess formation, as in the case described by Nicolas, Lebeuf, and Charpy.[7] In addition to the amount of flexion found in these cases, the deformity will usually persist even under full general anaesthesia. The fixed flexion of the

hip, and pain on attempted extension, not infrequently leads to a diagnosis of acute arthritis, but thorough examination of the hip will show freedom of all other movements if the flexion of the joint is respected. Where the condition is not too acute for the patient to walk, a limp is always complained of, and there is considerable apparent deformity in the standing position. This, however, readily disappears when sitting, although a slight scoliosis may persist. There is no tenderness on percussion over the vertebrae, and no spasm of the erector spinae muscles, but occasionally deep tenderness may be elicited in the lumbar triangle.

Examination of the abdomen reveals some muscular rigidity on the corresponding side, and an underlying tumour may be felt. If the upper part of the psoas sheath is involved the thickening and tenderness found on bimanual palpation of the loin are strongly suggestive of a perinephric abscess. The acute abscess tracks outwards into the sheath of the iliacus, and, unlike the chronic one, seldom passes deep to Poupart's ligament into the thigh. A radiogram of the spine and pelvis will be negative, but it is said that there may be haziness of the sacro-iliac or hip-joints if the abscess overlies them, and this may be sufficient to cause a suspicion of early involvement of these joints.[1]

TREATMENT

Treatment consists, in the first instance, of aspiration of the abscess, and—if the pathological examination confirms the diagnosis by demonstrating pyogenic organisms in the pus—adequate drainage. The usual incision is one made parallel, and slightly internal to, the anterior third of the crest of the ilium, cutting through the muscles and opening the abscess behind the peritoneum. If the case is one of pyaemia, the best results are often obtained, as in other pyaemic abscesses, by withholding drainage until a definite abscess has formed. The subsidence of the local condition is usually satisfactory and rapid. A light extension may be applied to the thigh to overcome the flexion at the hip ; this is especially indicated in children, in whom a pathological dislocation may readily occur, a complication which is extremely easily overlooked.

SUMMARY

The true origin of the acute psoas abscess may be difficult to decide, and although most of them are said to be secondary to a perinephric abscess or to suppuration in the iliac glands—diagnoses which are difficult to disprove—yet there can be little doubt that a certain number are pyaemic abscesses commencing within the muscle sheath. In favour of this supposition are: the antecedent illness so often present ; the not infrequent occurrence of other pyaemic abscesses ; the rapid subsidence of the local condition, so characteristic of the pyaemic abscess ; and the lack of evidence of perinephric suppuration.

In one of the reported cases[5] the perinephric tissue was explored by the lumbar route, and it was not until the psoas sheath was opened that pus was found.

The three cases described in this paper are almost certainly pyaemic in origin, the abscesses being limited to the muscle sheath, no communication with surrounding structures being found.

I wish to express my gratitude to Mr. C. M. Page for permission to publish the first two cases, which were under his care at St. Thomas's Hospital, and to Dr. J. Menton for his advice and help.

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RECURRENT VOLVULUS OF THE PELVIC COLON

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(*With Special Plate*)

It is perhaps justifiable to state that recurrent volvulus of the pelvic colon has not yet attracted a great deal of attention. Although its existence as a clinical entity has long been recognized, it seems likely that a considerable number of cases escape notice. The clinical features are inconstant, confusing, and evanescent, and, in addition, are often overshadowed by those of some intercurrent lesion. Also, it is not perhaps too much to say that recurrent sigmoid volvulus does not immediately occur to the investigator as a probable cause of obscure abdominal symptoms. Such cases are not invariably subjected to radiological investigation, and even when this is carried out the methods adopted are not always those best suited for the display of colonic anomalies. In our experience, however, recurrent sigmoid volvulus is not an extraordinary rarity, and it is our belief that, apart from the danger of fatal strangulation, it is responsible for a considerable amount of avoidable disability. The diagnosis in such cases can be of great difficulty ; the clinical picture can easily be confounded with that of abdominal neurosis, colitis, or some pelvic trouble in women ; and the differentiation from such conditions can only be effected by a close study of the clinical history, supplemented by a radiological investigation along modern lines.

LITERATURE

The standard textbooks of surgical and radiological diagnosis give adequate descriptions of the signs to be observed when the acute abdominal emergency has arisen. They are, however, unsatisfactory guides to the recognition of the recurrent type of sigmoid volvulus. Reference to the works of such authorities as Miles and Paterson Brown, Schinz, Baensch and Friedl, Albrecht, Kantor, Cawadias and Rankin, Bargen and Buie, shows that the special syndrome presented by this condition is either ignored completely or dismissed as a rarity of small practical importance. Edgren studied the previous clinical history in acute volvulus, obtaining prodromal signs in a large number ; these might be either attacks of abdominal distension or simply obstinate constipation. The hereditary factors were emphasized by Greiffenhagen, and by Plaut, who attended both a father and a son with sigmoid volvulus. Lockhart-Mummery also described the two types of chronic volvulus, one with attacks of pain and distension, the other with attacks of obstinate constipation and discomfort. Radiograms illustrating potential volvulus were published by Jordan. The chronic obstruction due to incomplete volvulus has been described by Zachary Cope and by Braun. A helpful account of the syndrome of recurrent volvulus is given by Hamilton Bailey, who notes, besides the previous constipation and pain, the diarrhoea and passage of flatus following spontaneous reduction. Berg records a case of recurrent volvulus occurring in a megasigmoid in a young woman, with attacks of pain and distension in the left iliac fossa—the radiogram showed actual torsion of the mucous folds of the colon. Retzlaff has noted cases of this condition with attacks of pain and distension and obstinate constipation. The most important contribution to the study of sigmoid volvulus was made by Laurell, who described two cases, showing pain and watery blood-stained diarrhoea without local distension (von Wahl's syndrome). His article contains a full discussion of the pathology and symptomatology of sigmoid

volvulus, with an interesting account of the radiological signs. Adamson and Aird have shown, by section of the presacral nerves, that the condition of megasigmoid is due to over-action of the sympathetic system.

ANATOMY AND PATHOLOGY

The pelvic colon is that part of the great gut lying between the brim of the true pelvis and the third piece of the sacrum: it generally conforms to one of three types: (1) The first and commonest type is that in which the pelvic colon lies at first in contact with the left pelvic wall; it then runs across to the right side of the pelvis, and bends back towards the middle line, where it turns down to join the rectum at the third piece of the sacrum. (2) In the second type it is longer. It passes over to the right as before, and then crosses over to the left pelvic wall, thus making an S-curve before joining the rectum at the usual level. (3) In the third type it is abnormally short and may be devoid of mesentery.

The mesentery of the pelvic colon is a fan-shaped fold, attached to the posterior abdominal wall. Its arrangement gives the pelvic colon a narrow pedicle, which can be further narrowed by fibrotic contraction due to chronic inflammation. The pelvic colon has only one function, which is to act as a storehouse for faecal matter: it has practically no absorptive functions, and its secretory powers are probably limited to the production of mucus for lubrication.

Excessive length of the pelvic colon may be regarded under three heads:

(1) *Persistence of a Foetal Type.*—Congenital elongation of the pelvic colon, apparently due to arrested development, occurs as a sporadic variation and is hereditary. It may take the form of an inverted U, lying in the right side of the abdomen. As the limbs of this U are closely approximated, an axis of rotation is present from birth. Sir Arthur Keith has informed us that this type corresponds in many respects to the normal foetal condition. The enormous elongation of the sigmoid colon, in which this part of the bowel may exceed the rest of the colon in length and may wander into any part of the abdomen, has been described by Kienböck as the "sigma elongatum mobile," and by Lardennois and Aubourg as "dolichocoly."

(2) *The Megasigmoid.*—This condition, associated with gross dilatation of the lumen, may occur by itself or in conjunction with the general colonic changes of Hirschsprung's disease. It does not seem to be in itself a definitely predisposing factor for volvulus. It appears to be due to a neuro-muscular imbalance between the sympathetic and parasympathetic systems.

(3) *The Acquired Type.*—This is an elongation of the pelvic colon due to an adaptation to dietetic habits. The redundant pelvic colon found in Russia and the Baltic States has long been familiar to Russian and German surgeons, and is responsible for the extraordinary frequency of sigmoid volvulus as an acute abdominal emergency in eastern Europe—some Russian hospitals showing it as forming 30 per cent. of all cases of acute intestinal obstruction. It is not a racial characteristic, as it is common among Russian Jews as well as among Slavs, while it is rare among Jews elsewhere. It is attributed to the coarse vegetable diet, rich in indigestible cellulose, which would make greater demands on the pelvic colon as a faecal storehouse.

Volvulus of the pelvic colon consists in a torsion of the gut, either on its mesenteric axis or on its own long axis. These two forms of torsion may coexist. Torsion to the extent of a half-circle may occur without any interference with normal function. More complicated types of volvulus are sometimes encountered. The factors underlying the genesis of a volvulus are primary, secondary, and tertiary, or directly exciting. The primary factor is the abnormal length of the pelvic colon. The secondary factors are: (1) elongation of the pelvic mesocolon, (2) narrowing of the base of attachment of the pelvic mesocolon to the sacrum, and (3) the formation of an axis of rotation by adhesions or by close approximation of the entrance and exit loops of a coil of bowel.

For the actual crisis to arise the directly exciting cause is most often a physical strain, but violent peristalsis from the abuse of purgatives and other causes may also play a part. It appears reasonable to regard sigmoid volvulus as essentially a dormant condition, subject to sudden crises, which latter may assume either a major or a minor form. Clinical attention has been chiefly focused on the major type of crisis, in which the degree and duration of the torsion are sufficient to interfere seriously with the function and circulation of the bowel. Such a case is characterized by enormous abdominal distension and absolute obstruction, while pressure on the veins leads to congestion, and eventually gangrene, with resulting peritonitis. The minor type of volvular crisis is, in our opinion, very much more frequently encountered than the major type, though it is more difficult to diagnose, as the patient is nearly always seen during a latent period. No physical signs are present at this time, so that the clinician is dependent on the history, which may be extremely difficult to elucidate. Also, the clinical history may be variable in accordance with the special features of the case.

VARIETIES AND INCIDENCE OF VOLVULUS

The clinical types of recurrent sigmoid volvulus can hardly yet be defined, but certain features appear with sufficient frequency to suggest a provisional classification.

1. The first type of case shows severe and continuous constipation, perhaps with some discomfort or aching in the back or abdomen. Some are chronic and do not show anything in the way of a crisis, in others a minor crisis occurs periodically, in which the symptoms are accentuated. Constant or recurrent constipation may occur in any type of volvulus.

2. The second group of cases may either have some constipation during the latent period or may be free from symptoms during this time. These patients are subject to recurrent attacks of torsion, causing severe spasmodic pain and local distension of the bowel, but the torsion is not sufficient to occlude the veins.

3. In the third group, which is really only a severer form of the second, the torsion during a crisis is more marked and causes interference with the venous return. Such cases have recurrent attacks of severe pain with local distension and watery or blood-stained diarrhoea. The venous congestion induced by the twist causes a transudation into the bowel lumen, which is stored in the affected loop until it is set free by spontaneous reduction, when it appears as diarrhoea, watery or blood-stained according to the degree of torsion. The occurrence of the diarrhoea *after*, rather than during, the attack of pain is thus a point of diagnostic importance. The pain is very severe and may cause fainting. The cases showing von Wahl's syndrome of pain and diarrhoea without distension belong really to this group; the absence of distension is more apparent than real, as the affected loop may be incarcerated in the pelvis and so give little evidence as to its condition. The loss of fluid caused by the diarrhoea accounts for the extreme emaciation shown by patients in whom the attacks are severe and frequent.

The usual figures give a proportion of 4 males to 1 female as sufferers from the acute abdominal emergency,

or major crisis of sigmoid volvulus. It will be seen that in our own series there is a slight female preponderance. We do not attempt to draw any far-reaching conclusions from such a short series, but this finding is at least suggestive of the idea that the predisposing factors are fairly equally distributed between the two sexes, and that it may be the more energetic life led by the average adult male that renders him more liable to the major crisis.

RADIOLOGICAL INVESTIGATION

Fischer was the first to evolve a satisfactory technique for the examination of the air-and-barium-filled colon, which has been well described by Fleischner as the transformation of the colon into a translucent tube. From another angle the researches carried out on the digestive relief pattern by Forssell, Berg, Chaoul, Albrecht, and many others led finally to the work of Knothe, who has elaborated the methods of demonstration of the colonic relief. These methods have recently been ably summarized by O'Sullivan and Kadrnka.

Our own technique is based on those of the workers already mentioned, and generally comprises three stages:

1. The filling of the colon with a watery solution of barium containing tragacanth, and the study of the colonic contours.

2. The evacuation of the barium and the study of the colonic mucous membrane in sections, with the aid of graduated compression.

3. Fractional inflation of the colon with air to obtain a clear view of the anatomical relationships of the colon.

The radiological signs may be direct or indirect. Direct signs can naturally only be seen when the bowel is actually undergoing a crisis, or when the anatomical features keep it perpetually on the verge of one. Two direct signs have been observed by us: (1) actual screwlike torsion of the mucous folds of the colonic relief. (We have only observed this sign twice; it is seen in Case 2. As far as we are aware this sign has been previously described only by Berg. Manifestly it can only be due to torsion of the bowel on its long axis.) (2) The coils of bowel may be seen twining over one another as in Case 3. Indirect signs are afforded by a study of the anatomical features of the colon, which may result in the discovery of a loop of bowel with fixed and approximated limbs, or some other cause for a potential axis of rotation. It must be remembered that we are dealing with a dynamic and not a static condition, and that to arrive at a diagnosis an effort must be made to understand the potentialities as well as the actual anatomical facts. Naturally, the accidental discovery of a potential volvulus in a patient who has never had any symptoms attributable to it is of no significance, but when the clinical history is suggestive of volvular attacks, such a finding becomes of great importance.

A short account of some illustrative cases is given below.

CASE RECORDS

Case 1.—Jane D., aged 18. History: constipation in infancy, recurrent attacks of pain in left iliac fossa since age of 3, also attacks of severe constipation, fainting attacks at stool, and a visible swelling in left iliac fossa. The attacks of pain and distension are getting more severe, they are frequently brought on by physical strain, and the distension is described as a sausage-shaped swelling in the left iliac fossa, the appearance and disappearance of which was sudden. A barium enema (see radiogram, Fig. 1 on Special Plate) showed a redundant pelvic colon with a loop fixed at its two extremities, forming a suitable axis of rotation for a volvulus. A diagnosis of recurrent sigmoid volvulus was made. A preliminary caecostomy was performed, with a view to excision of the loop. This was badly borne, and the second operation was abandoned. The attacks of pain and distension continued, and six months later the excision of the redundant loop was carried out and end-to-end anastomosis performed. Since this the patient has been free from symptoms, and the most recent report states that she has gained over twenty pounds in weight, and is able for the first time in her life to lead an active open-air existence.

Case 2.—Katherine F., aged 26, a trained nurse. For about a year had suffered from periodical attacks of severe abdominal pain with distension. Attacks were brought on by physical strain, and on account of them she had had to give up the practice of her profession. Much loss of weight and some vomiting. Tenderness in both iliac fossae. Severe constipation. Barium enema (Fig. 2, Special Plate) showed a long sigmoid colon of the second type, with torsion of the mucous folds higher up. Recurrent sigmoid volvulus was diagnosed. The redundant sigmoid was excised and end-to-end anastomosis performed; the appendix was also removed. Her most recent report states that she has been free from symptoms since the operation (ten months), that she has been back at full work for several months, is feeling perfectly well, and has gained weight.

Case 3.—Charles P., aged 19, complained of aching pains about the umbilicus since he was 14. Recurrent attacks of pain set in about a year ago, and were always followed by copious watery diarrhoea. An inflamed appendix was removed nine months ago. Six months ago the attacks began to increase in frequency and severity, and were now accompanied by distension as well as by the diarrhoea. A particularly severe attack led to his admission to hospital. A barium enema (Fig. 3, Special Plate) shows an enormous loop of pelvic colon on the right side, and the actual twining over of the coils to form a volvulus. The diagnosis of recurrent volvulus occurring in a congenitally elongated pelvic colon was made. The redundant loop was excised and lateral anastomosis performed. There has been no return of symptoms during the five months following this operation.

Case 4.—Leonard E., aged 3½, was admitted with an eight-day history of severe constipation and intermittent pain in right and central abdomen. On examination he was seriously ill, with much abdominal distension. The symptoms subsided and the barium enema (Fig. 4, Special Plate) showed a large redundant loop of pelvic colon running up into the right abdomen. This was considered a potential volvulus of the same type as Case 3, and the opinion was formed that he had passed through a minor crisis of torsion. He presented other stigmata of degeneration, and his intelligence seemed subnormal. It was not considered advisable to intervene, but a very guarded prognosis was given. Since then he has again been admitted to hospital with a similar attack, which also subsided spontaneously.

These last two cases are instances of persistence of a foetal condition.

In addition to the foregoing, the following cases also came under our notice during the period from February, 1932, to April, 1933.

Case 5.—Female, 41 years. Always very constipated, for last two months attacks of pain, distension, and watery diarrhoea, also rectal haemorrhage. Very emaciated.

Case 6.—Male, 34 years. Occasional attacks of severe abdominal pain with distension, followed by watery diarrhoea; duration over last ten years.

Case 7.—Female, 46 years. Attacks of severe pain, during which she faints, followed by copious watery diarrhoea (two years). Much emaciation.

Case 8.—Female, 64 years. Severe constipation, continuous for last two years; also attacks of severe pain, with great distension and copious watery diarrhoea, which has been blood-stained. Much emaciation.

Case 9.—Female, 12 years. Seen in attack of severe abdominal pain with distension in left iliac fossa.

Case 10.—Female, 19 years. General peritonitis three years ago; always constipated since then; also attacks of pain in left iliac fossa. During attacks constipation is accentuated.

Case 11.—Female, 61 years. Attacks of pain with local distension in left iliac fossa, followed by watery diarrhoea and sometimes by dark red haemorrhage.

Case 12.—Male, 63 years. Attacks of pain and local distension in left iliac fossa, followed by watery, sometimes blood-stained, diarrhoea.

In each of the above cases a potential volvulus of the pelvic colon was demonstrated by air-and-barium filling, except in Case 12, in which the pelvic colon proper was unusually short, but the iliac colon was redundant with a loop in the form of a U with closely approximated limbs. In this case torsion of the colonic mucous folds was also seen.

CONCLUSIONS

The study of the cases enumerated above has convinced us that recurrent sigmoid volvulus, far from being a mere curiosity, is a frequent source of obscure symptoms, which may prevent the patient leading anything like a normal, useful life. We do not wish to claim for this lesion an unduly prominent place, and by no means do we underestimate the important parts played by infective and by neuropathic elements in the genesis of abdominal symptoms. We feel, nevertheless, that this anatomical factor has been to some extent overlooked in the search for the solution of intestinal problems, and that this neglect is responsible for an appreciable number of diagnostic errors, with resulting therapeutic failure. We have endeavoured to show that the correct interpretation of these cases depends on correlating or, one might say, in bridging the gap between the clinical history and the radiographic signs elicited by the application of Fischer's method. In the three patients in whom this diagnosis was followed by operative intervention our diagnosis was confirmed by a complete disappearance of symptoms, and by the restoration of an invalid patient to a normal life.

The diagnosis made, the question of treatment arises. The gratifying results following excision of the redundant loop have confirmed us in the opinion that this is the method of choice. Cases are, of course, encountered in which, for one reason or another, this operation is contra-indicated. In such instances an attempt should be made to relieve the symptoms by fixation of the loop, while in those patients who are obviously bad surgical risks recourse must be had to such methods as colonic lavage and mild aperients, with avoidance of violent purgatives and physical strain, and the adoption of a diet in which the indigestible residue is reduced to a minimum.

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A CASE OF OSTEITIS DEFORMANS TREATED WITH PARATHORMONE

BY

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AND

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(With Special Plate)

The great impetus that has been given in recent years to the study of skeletal disease by the isolation of the parathyroid hormone by Collip, and by the recognition of the hyperparathyroid syndrome, has drawn renewed attention to a wider field in the pathology of diseases of bone. Numerous experimental studies in calcium and phosphorus balance and in blood chemistry have added to existing knowledge, and a new conception of bone pathology is taking shape. So far, however, the aetiology of osteitis deformans has escaped detection. It would seem clear from the investigations of several workers that, whatever be the true pathogenesis of this disease, the end-result is a gradual accumulation of calcium and phosphorus in the thickened and deformed bones. This is particularly true in the later stage. Thus, in the case investigated by Cuthbertson,[1] there was a daily retention of 0.4 gram calcium oxide and 0.2 gram phosphorus pentoxide, and in the metabolic experiment carried out by Rabinowitch[2] on a well-developed case, calcium and phosphorus retentions of 40 and 36.3 per cent. respectively were found.

When the patient whose record is given below came under observation in 1931, it appeared to us that the administration of parathormone might cause mobilization of the stores of calcium and phosphorus in the bones, and might relieve symptoms. We were particularly anxious to decrease the size of the cranium and face, and prevent, if possible, further implication of the cranial nerves. The effect of parathormone was reinforced by the administration of acid sodium phosphate by mouth.

CASE HISTORY

A married woman, aged 54 years, was admitted to the Aberdeen Royal Infirmary on February 28th, 1931, suffering from a fracture of the right femur caused by a fall when lifting a tub. The fracture was at the junction of the upper and middle thirds of the shaft. It was reduced, and skeletal traction applied. By May 17th the patient was walking with a calliper splint, and there was a firm union of fragments. The patient had been a healthy woman until the age of 31 years. She had one child, a daughter, in good health. The family history revealed no data of value. She had suffered from uterine haemorrhage in 1908, and states that both ovaries were removed for cysts. There are no notes available of the operation. The monthly periods continued for ten years after this. About 1920 she had attacks of abdominal pain after food, and the appendix was removed. In 1922 she fractured the right tibia by a fall. There was no evidence, in the notes relating to the case at that time, of any generalized bone disease. About 1923 she noticed that her head was increasing in size and, in particular, that the forehead was becoming broad. She complained of headaches and numbness over the right side of the face, and deafness in the right ear. The bony deformity of the skull gradually increased. The photographs show the patient in 1906 (Fig. 1 on Plate) and in 1931 (Figs. 2 and 3).

Findings

Upon examination in 1931 the skull was found to measure 26½ inches in circumference, 14 inches over the vertex from pinna to pinna, and 17 inches from atlanto-axial joint to nasion. By radiological examination the calvaria was seen to be thickened, and showed patchy ossification. The pelvis showed the same appearances, and the shaft of the right tibia

was enlarged and thickened, and showed some cyst formation. A metal pin was *in situ* through the old fracture of the bone, which was not tender. The eighth left rib was thickened in its whole length. There was no deformity of the humerus, radius, ulna, scapula, sternum, clavicle, or other ribs. There was no gross abnormality of the heart and lungs. The blood pressure was 150/94. The blood count showed no anaemia and no abnormal cells. The Wassermann reaction was negative on several occasions. The urine contained no abnormal constituent. On vaginal examination no abnormality could be discovered. The muscular power in the arms and legs was fairly good, and the limb reflexes were present and equal. The plantar reflexes were flexor. There was no loss of skin sensation. The pupils reacted sluggishly to light and on accommodation. The eye movements were full, and no nystagmus was present. The fields of vision showed temporal contraction for white, and in the right eye a marked contraction for red. The optic disks were much cupped, and the right somewhat paler than the left. There were some unusual bands of optic atrophy radial in the optic disk. Left facial paralysis was present and an intermittent tic of the right facial muscles. The tongue was protruded in the mid-line, and the palate moved normally. Bilateral nerve deafness was present, the hearing being slightly more acute in the left ear.

The blood chemistry showed the following values in milligrams per cent.:

Date	Phosphate	Calcium	Sugar	Urea
10/9/31	2.0	10.0	—	—
2/12/31	—	11.0	—	—
30/1/33	4.8	9.8	81	32
3/2/33	4.5	9.4	—	—
8/3/33	4.4	10.0	—	—

The plasma phosphatase was 3.96 units.

Treatment

The administration of parathyroid extract (Collip) was commenced in March, 1931, and has been continued in dosage of from 5 to 10 units daily, with periods of intermission, during the past two years. Acid sodium phosphate, 30 grains, taken three times daily, well diluted in water, was given as an adjuvant to depress the absorption of calcium in the intestine, decrease the serum content in calcium, and promote the excretion of calcium in the urine. Sodium phosphate alone was found to be effective by one of us in the mobilization of calcium deposits in a case of calcinosis.[3] We had no facilities for estimating the effect of parathormone treatment by a balance experiment, but comparison of a series of *x*-ray films of the head suggests that there is now less calcification present in the skull than there was two years ago. We are supported in this by the opinion of Dr. Middleton Connon, honorary radiologist to the Royal Infirmary. The skull measurement has probably not increased. In 1926 the circumference of the head measured 25½ inches; in 1927, 25¾ inches; in 1930, 26½ inches; and in February, 1931, 26½ inches. Six months after treatment was commenced the head measured 25¼ inches. Such measurements are subject to a certain amount of error.

The following measurements were made by Professor Alexander Low on January 27th, 1933:

Cranial circumference	678 mm.*		Face length	110 mm.	
Nasio-inional arc ...	416 ,,		Face breadth	145 ,,	
Nasio-inional chord ...	211 ,,		Interocular breadth ...	39 ,,	
Cranial length	225 ,,		Bigonial breadth ...	101 ,,	
Cranial breadth ...	190 ,,		Height standing ...	1,537 ,,	
Cranial height... ...	142 ,,		Span of arms ...	1,646 ,,	

* 26.4 inches.

These measurements, contrasted with the average figures for a female, show that the cranial circumference is increased by at least 100 mm., the cranial length by 40 mm., the cranial breadth by 45 mm., and the face breadth by 20 mm. On the other hand, the face length and bigonial breadth are not increased. The breadth of skull in proportion to length is relatively great, so that the cranial index is 84.4—that is, brachycephalic.

The patient herself claims to have felt better during the past two years, and has been able to carry out her housework and go out walking without fatigue, which had not been the case before treatment. Her general appearance is markedly better. No renal calculus is to be seen on *x*-ray examination.

COMMENTARY

It is interesting to note the effect of parathyroid administration on the callus formation and consolidation during the healing of the fracture of the femur (Fig. 6). Consolidation was rapid, and the repair of the fracture ran a normal course. There has been no yielding of the bone at the site of the fracture since. Hueper[4] found that parathyroid administration increased the rate of calcification of fractures in animals by from 20 to 35 per cent., and Ross[5] noted that partial removal of the parathyroids resulted in delay in the union of fractures in experimental animals. If attention is directed to one particular area of diseased bone, and the penetration factors in the *x*-ray examinations are carefully controlled, it may also be possible to see if the pathological changes in the tissues of the bone are influenced by the removal of calcium and phosphorus.

Although parathormone has been used therapeutically in the present case, it is not claimed that osteitis deformans is associated with hypoparathyroidism. In this case the serum calcium has been within normal limits. This is in accord with the findings of O'Reilly and Race[6] in the investigation of a series of twenty-one cases of varying severity, where the serum calcium lay between 9.5 and 10.6 mg. per cent. Nor would parathyroid treatment be rational in all stages of the disease, since at the onset there may be increased excretion of calcium. But where excessive storage of calcium and phosphorus is occurring it may be possible to keep it in check by the mobilization and excretion of part of the accumulated stores.

SUMMARY

A case of osteitis deformans is described.

The effect of treatment with parathormone is discussed.

We have to thank Dr. Middleton Connon for his unremitting attention in obtaining a large series of films of the skull and fractures taken with comparable exposures; Professor Alexander Low of the anatomy department, Aberdeen University, for his careful measurements of the skull; and Dr. W. Clark Souter for his ophthalmological reports on the case.

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A CASE OF MULTIPLE GASTRIC ULCERS

BY

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(With Special Plate)

A disease of such widespread interest as peptic ulcer appeals alike to the physician and the surgeon. When manifested in the very menacing form illustrated by the following case it demands extra respect, and seems to call for a special communication.

CASE REPORT

E. B., a man aged 30 years, was sent up by Dr. G. L. Ormerod of Westbury-on-Trym. For about four years epigastric pain had ensued after meals, and was often relieved by vomiting. During recent months the trouble was accentuated and much weight had been lost. The patient's appearance accorded with the history, and he was an unfavourable subject for major surgery. The pulse and temperature were normal, and the Wassermann reaction negative.

Slight exophthalmos was present. On December 7th, 1932, five-sixths of his capacious stomach and a large cluster of lymph glands, one of which was the size of a walnut, were removed. Inspection of the mucosal aspect of the resected portion showed four ulcer craters along the lesser curve, varying in diameter from about one to two centimetres; closer examination revealed two scars of former ulcers. The open end of the duodenum was closed, and the jejunum joined to the residue of the stomach, after the method of Polya. Healing was by first intention. He now looks well, eats a suitable diet, and remains free from all gastric symptoms. His weight was steadily increasing on May 10th, 1933.

COMMENTARY

Owing to the infrequent occurrence of multiple gastric ulcers there is a paucity of literature on the subject, but I have extracted a few illuminating facts, which are incorporated in the following observations.

Clinical: The history and findings of my case were those of an ordinary solitary peptic ulcer, and were in no way commensurate with the multiplicity of the lesions. This corroborates the evidence of Judd and Proctor[1] in a series of cases recently reported from the Mayo Clinic. *Radiology:* After an opaque meal there were visible three excrescences on the stomach shadow near the distal end of the lesser curvature (see Special Plate). These indications of ulcer craters are seen to correspond to the defects in the lining of the ablated organ. For this invaluable evidence I have to thank Dr. Mayes. It is highly interesting and significant to note, from Judd and Proctor's report, that in only two cases of their series did the *x*-ray examination reveal definitely two ulcers in the stomach. *Morbid anatomy:* The outstanding interest of the case of E. B. lies in the great rarity of such multiplicity of chronic ulcers as his stomach exhibits. Four craters are obvious, and small scars of former ulcers are visible on careful inspection. They lie, as in a chain, along the lesser curvature (see Special Plate). The occurrence of acute perforation was a not unlikely complication to expect in the case, for the stomach was not adherent. The exceptional swelling of the adjacent lymph glands in the lesser omentum bore eloquent testimony to the intense activity of the pathological process. Mr. A. D. Fraser has kindly verified the simple character of the condition in his histological report: "Simple peptic ulcers—no evidence of malignancy."

Number of Ulcers: Judd and Proctor analysed 1,475 cases of gastric ulcer operated on in the Mayo Clinic from 1914 to 1924. Of this total there were eighty-seven with two or more ulcerations in the stomach—that is, 6 per cent. Only about fifteen times in the vast array of nearly 1,500 cases were more than three ulcers present. Portis and Portis[2] quote Fenwick's search of post-mortem records, in which he found 867 cases of two or more ulcers reported in 19.5 per cent., four or more ulcers in thirty-seven cases—that is, 4.2 per cent. These were all cases with active or open ulcers. A comparison of these figures suggests that the actual proportion of multiple to solitary gastric ulcers is well over the number met with surgically. The disparity is, perhaps, due to the different social categories from which the two sets of figures were collected. The Mayo Clinic draws its patients from a class which takes earlier and more notice of disease. *Site:* The situation of the lesions in the multiple as in the solitary ulcers reveals a predilection for the lesser curvature. This is demonstrated remarkably in the specimen here reported. *Associated disease:* The association of syphilis with multiple ulceration is slight, according to Judd and Proctor's findings. They report only six such cases in their series. The remainder of their cases were of a simple nature, apart from two. Cancer was definitely present among the ulcers of two cases, and was indefinitely diagnosed in three others. *Liability to acute perforation:* Instances of this complication figure relatively more prominently in the literature. Perhaps it is the more dramatic character of the symptoms and pathology of the acutely perforating ulcers that explains this distinction. Julian Taylor[3] reported perforation of peptic ulcers; Skemp and Skemp[4] and Drury[5] report multiple perforated gastric ulcers, as do Masson and Simon.[6]

In the present case such diffuse ulceration, with the dangers of blood vessel erosion, perforation, and malignant transformation multiplied proportionately, justified surgical measures of corresponding magnitude. The extensive resection which was undertaken has been well justified by the sequel. Once again the experience of this case corresponds with the main findings of Judd and Proctor, who report that some form of resection was performed in the majority of their series of cases. The hospital mortality was notably low—3.4 per cent.

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CHRONIC PERFORATING ULCERATION OF THE FOOT

OBSERVATIONS ON A CASE TREATED BY LUMBAR SYMPATHECTOMY

BY

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(*With Special Plate*)

W. Mayo[1] has pointed out that negative and positive results are necessary in assessing the value of any therapeutic measure, and nowhere is this better illustrated than in the surgery of the sympathetic nervous system. The observations made in the following case may therefore be of interest.

C. W., a male aged 56, was admitted to hospital in March, 1932, with ulcers of the left foot, which had been present for a period of three years. He had been treated on many occasions, but the ulcers were constantly breaking down. He had been under treatment in this hospital two years previously, and, with rest in bed and palliative measures over the long period of six months, the ulcers healed, but broke down again on the resumption of activity. The big toe of the left foot had been amputated some years before, for a condition the nature of which could not be definitely ascertained, but which appeared to be a hallux valgus with ulceration. On examination three perforating ulcers were found on the sole of the left foot, two situated anteriorly on the under aspect of the fourth and fifth metatarso-phalangeal joints, and one on the under aspect of the heel (see Special Plate, Fig. 1). The latter was more superficial, but the other two were about three-eighths and one-quarter of an inch deep respectively, and surrounded by a ring of heaped-up white skin. The margins were hard, and the callosity extended for about an inch around the ulcers. The discharge from the ulcers was thin and watery. Although the ulcers were deep, *x* rays revealed no abnormality in the underlying bones. The arteries of the limb appeared normal. The Wassermann reaction was

negative, and general examination, including a careful investigation of the nervous system, was also negative. Each foot showed a slight degree of pes cavus. There was no clinical or *x*-ray evidence of spina bifida occulta, or of any other lesion that might have a bearing on the aetiology.

Palliative treatment was adopted for four weeks, with complete rest in bed. There was no improvement in the local condition. The patient's incapacity for work, owing to constant attention to the ulcers, made other treatment desirable. Periarterial sympathectomy of the femoral artery having proved of uncertain value in other lesions, it was thought that neurectomy of the left lumbar sympathetic, with consequent permanent vaso-dilatation (or at least vaso-dilatation of prolonged duration), would be likely to lead to some nutritional improvement with permanent healing. The operation was performed on April 23rd, 1932. The left lumbar chain was exposed through the peritoneal cavity, and the portion of the sympathetic cord from just below the fourth ganglion, up to and including the second lumbar ganglion, was removed.

Following operation the usual effects were observed in the affected limb—increased temperature, increased warmth, absence of sweating, and dryness of the skin. An improvement in the appearance of the ulcers was noted six days after the operation. The surrounding skin appeared less hard, and the discharge from the ulcers was definitely increased, although it was still thin and watery. On May 20th, about four weeks after the operation, the ulcers were much smaller (see Special Plate, Fig. 2), and one week later almost healed. Healing was complete six weeks after the operation (see Special Plate, Fig. 3). The healed areas became firmer, and remained healed for a period of two months, when both anterior ulcers again broke down. Four days after operation the patient complained of an induration which he felt in the glans penis. This had not been noticed by the patient before operation. Examination showed an indurated area on the right side of the glans the size of a threepenny piece. The area was not ulcerated. Two months later the indurated area on the penis had become ulcerated. The lesion suggested a syphilitic origin, either a primary or a recurrent chancre, but Wassermann tests, before and after a provocative dose of N.A.B., were negative. A section of the edge of the ulcer was taken, and microscopical examination revealed the appearance of a typical squamous carcinoma (see Special Plate, Fig. 4).

COMMENTARY

From these observations it will be seen that, while healing was rapid after the improvement in the circulation to the foot, the vascular changes, although persisting, were not sufficient to maintain healing. In this type of ulceration there is some factor at work which causes repeated breakdown, despite even the maximum effects that can be produced by sympathetic denervation. Although the onset of carcinoma in this case must at present be regarded as a coincidence, it may be noted in view of the increasing number of operations performed on the sympathetic nervous system. The surgery of this system is still in its infancy, and any unusual feature is worthy of record.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

A CASE OF DIAPHRAGMATIC HERNIA

(With Special Plate)

In view of the unusual position of the hernial orifice the following case appears to be worth recording.

A male child, aged 2 months, was attending the orthopaedic out-patient department of the Croydon General Hospital in December, 1932, on account of a talipes equino-varus. While waiting to be seen the mother fed it, and, soon after, it had a convulsion and ceased breathing. After artificial respiration it recovered, and was admitted to the hospital. The mother gave a history of similar attacks before, which had been less severe. On examination the child looked extremely ill. Respiration was laboured, and about 40 a minute; the temperature was 98.2° F., the pulse feeble at 160. The apex beat was in the anterior axillary line, but little else could be made out, as any movement of the child seriously embarrassed respiration. It died twenty-four hours later, no diagnosis having been made. A post-mortem examination revealed the following condition. The peritoneal cavity was almost entirely occupied by a large liver and a greatly distended stomach. Save for six inches of jejunum, all the small intestine, caecum, and ascending and transverse colon had herniated through the right side of the diaphragm. The intestine returned to the abdomen near the splenic flexure. Only a small portion of the right lung was visible at the apex, the heart was displaced well over to the left, and only a small portion of the left lung could be seen. No definite peritoneal sac could be seen round the hernial contents. The case appeared so interesting that a flash-light photograph was taken before the viscera were disturbed.

The hernial orifice had apparently resulted from a lack of fusion of the splanchnic mesoderm and the right pleuro-peritoneal fold. Such a hernia is much commoner on the left side, according to the literature on the subject. It is interesting to speculate whether artificial respiration would have further reduced the hernia.

We are indebted to Dr. Genge for permission to publish this case.

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A CASE OF DIAPHRAGMATIC HERNIA

The following case appears to be of sufficient rarity to merit description.

A Somali, male, aged about 25, was admitted to the Burao Hospital on December 25th, 1932, giving the following history. About seven years previously he had had an attack of what he thought was pneumonia. Apart from that he had kept in perfect health until just over a year before admission, when, in a fight, he was struck by a stick on the upper part of the chest. This caused some localized swelling, which subsided in a few days. No history of any wrench or strain could be obtained. There were apparently no further symptoms until a month before admission, when he began to get some colicky pain, and to notice a lump in the abdomen. The bowels were constipated, but there was no vomiting and no urinary symptom.

On admission the patient was a well-nourished young man, and he did not appear to be very ill. The abdomen was flaccid, and on the right side there was a large, hard, freely movable tumour, extending from the right iliac fossa upward to about the level of the umbilicus. Rectal examination and examination of the blood and urine were negative. An enema gave a good result, and did not affect the size of the tumour. No *x* rays were available. The tumour was thought to be of either caecal or renal origin. Operation was advised, but not regarded as urgent. On December 31st his condition suddenly became worse, and it was obvious that he had a general peritonitis, a tympanitic, immovable, tender abdomen, and a pulse of 130. An enema still gave a good result. Operation was now urged, but refused. The patient died during the night.

Post-mortem examination showed a general peritonitis. The caecum was distended with hard faeces to the size of a small coco-nut, and its anterior wall showed several greyish gangrenous patches, one of which had perforated and caused the peritonitis. Numerous stercoral ulcers were found in the mucous membrane. The ascending colon was distended with hard faeces to the diameter of about two inches. The transverse and descending colons were almost empty. On opening the chest the hepatic flexure was found protruding through the right side of the diaphragm as a small loop, measuring about three inches on its convexity. It was flaccid, healthy, and showed no sign of strangulation. It was contained in a hernial sac of diaphragmatic pleura. There was no peritoneal covering.

Death was due to perforation of a stercoral ulcer of the caecum, the result of chronic intestinal obstruction from a diaphragmatic hernia, and the cause of general peritonitis.

Diaphragmatic herniae are of considerable rarity, and the majority of cases have been in infants, born dead, or dying soon after birth. Few of the congenital cases can survive to adult life, at any rate without symptoms, and most cases in adults are due to injuries to the diaphragm. In the case described above there is no history of any injury which could involve the diaphragm, and the presumption is that the hernia was a congenital one. There was certainly no penetrating wound, and apparently no wrench or strain which could have affected the diaphragm.

I am indebted to Dr. A. W. H. Donaldson, medical officer in charge, British Somaliland, for permission to publish this case.

A. H. MORLEY,
East African Medical Service.

Reports of Societies

ENTAMOEBA HISTOLYTICA CARRIERS

At the annual general meeting of the Royal Society of Tropical Medicine and Hygiene the retiring president, Dr. G. Carmichael Low, welcomed the new president, Sir Leonard Rogers. Subsequently Professor Gordon Thomson received the Chalmers medal on behalf of Dr. Adler.

A paper by Colonel H. W. ACTON, on *Entamoeba histolytica* carriers and their treatment, was read by Dr. D. PANJA. Acute amoebic dysentery was estimated to occur only in about 5 per cent. of cases of amoebic colitis in an ordinary well-fed population, but its incidence might rise to 25 per cent. following malnutrition or intercurrent disease. As a rule the lesions in the bowel were trivial, producing at first constipation, which later might alternate with diarrhoea ; sometimes morning diarrhoea with mucoid stools resulted. This was the picture in the common type of carrier. *E. histolytica* could live a purely coprozoic life in the colon without producing bowel lesions ; two necropsies on amoebic carriers were cited in support of this view. Factors that permitted penetration of the healthy columnar cells included superficial trauma induced by either helminths or dysentery bacilli. As stasis continued the bacterial flora changed, streptococci replacing coliform organisms ; the more numerous these streptococci colonies on culture, the more extensive the ulceration of the gut. In the mixed type of bacillary and amoebic carrier, a varying number of non-lactose-fermenting colonies might be seen ; they included typical dysentery bacilli, *Bacillus pseudo-carolinus*, and *B. morganus*, as well as late lactose-fermenters such as the meta-dysentery group. Three different types of carriers were recognizable: (1) Coprozoic carriers, who showed neither symptoms nor lesions. (2) Pathogenic carriers, who had pathological lesions and slight symptoms. Here a breaking-down of the local defences in the base of the ulcer resulted in embolic manifestations such as sciatica, myositis, arthritis, or even myocarditis, and haemolytic streptococci were often found in the urine. Symptoms due to stasis followed: these included dysfunction of the thyroid and adrenals, with harsh cold skin and low blood pressure. Leucodermia, food idiosyncrasy, urticaria, eczema rubra, and asthma might also be encountered. (3) Mixed carriers of amoebic and bacillary infection constituted about 15 per cent. of the Calcutta cases, and they were difficult to cure with either emetine or bismuth emetine iodide alone. Reflex spasms at the pylorus, caecum, and transverse and descending colon occurred ; a few developed signs of duodenitis and duodenal ulcer. The invading Gram-negative bacilli from these ulcers—for example, *B. asiaticus*—did not cause emboli, but occasionally gave rise to continued fever. More commonly, such organisms were excreted in the bile or in the urine, when they might produce cystitis. Routine treatment consisted of 1/6 grain of omnopon (Roche) at night, followed one hour later by 2 grains of bismuth emetine iodide in 1 oz. of paraffin. This was continued for twelve nights, the stools being subsequently examined for cysts on six consecutive days. About 5 to 8 per cent. failed to be cured, mostly owing to concomitant bacillary infection. Mixed infections in addition were treated with a vaccine prepared from the causative organism, and with 10 grains of calcium lactate and 1/4 grain of parathyroid night and morning, while starches were eliminated from the diet. Bismuth kurchi bark and carbasone had recently been tried with promising results, both methods being very effective without producing toxic symptoms.

Professor WARRINGTON YORKE, in opening the discussion, said the immediate symptoms in amoebic dysentery were readily cleared up ; the difficult thing was to produce permanent sterilization. In following up cases the real issue was not what happened up to nine days subsequent to treatment, but what took place after nine months. Another point of interest was why infected people in England and other temperate zones failed to develop symptoms yet did so on proceeding to the Tropics. It would appear that some concurrent infection must be necessary. Dr. CARMICHAEL LOW doubted whether the symptomless carrier had lesions in the bowel. He mentioned the case of a patient dying of liver abscess in whom he had failed to find bowel lesions at necropsy, despite having examined every inch of the bowel. He agreed with Professor Yorke that cases should be examined over longer periods, at least for twenty-one days. Professor GORDON THOMSON cited Sellards's experiment as evidence against the coprozoic or contact carrier, the difference between the symptomless carrier and the case with clinical manifestations, in his opinion, depending on host resistance. To exclude invasion of the gut in the contact carrier it would be necessary for serial sections to be cut throughout the colon.

Dr. C. M. WENYON agreed with Professor Thomson as to the difficulty of excluding lesions in the gut in contact carriers. Certainly naked-eye examination was not enough, as was shown in the section of a very small ulcer which he (Dr. Wenyon) had put out for inspection and which had been found by accident. He agreed with other speakers that six days was a quite inadequate time in which to estimate whether infection had been eradicated, but in Calcutta reinfection might continually be taking place, so it was probably not worth while prolonging observations. Dr. MANSON-BAHR agreed with Dr. Wenyon about the minute nature of bowel lesions which were frequently revealed in life during sigmoidoscopy, especially if a magnifying attachment was used. He did not think haemolytic streptococci had any significance in amoebic colitis, and estimated that the patient should be watched for at least two years before deciding whether he was cured. The immediate success of treatment could best be gauged by periodical sigmoidoscopic examinations. Sir ALDO CASTELLANI agreed with Colonel Acton that mixed carriers occurred, and that though Shiga and Flexner bacilli were rarely isolated meta-dysentery bacilli were common. He advocated vaccines in these cases.

Dr. HAMILTON FAIRLEY pointed out that in many symptomless carriers the sigmoidoscopic appearances of the bowel were absolutely normal, and there was neither pathological exudate nor occult blood in the faeces. Evidence that the gut wall was invariably invaded was still inconclusive, and more pathological data on the carrier state were necessary before the question could be considered settled. He did not regard *Bacillus pseudo-carolinus* and meta-dysentery organisms as pathogenic, while metastatic complications due to streptococci were in his experience rare. Captain D. D. LAMBERT pointed out that as about 50 per cent. of the people resident in Calcutta were cyst carriers, such conditions as constipation, fibrositis, and the various clinical syndromes described were probably fortuitous associations with the *E. histolytica* carrier.

Sir LEONARD ROGERS stressed the difficulty of keeping patients long under observation in Indian hospitals, and agreed that trauma of the mucosa induced by ankylostomes would favour amoebic invasion and so explain the greater frequency of bowel lesions in the Tropics. In amoebic abscess of the liver scars or actual ulcers were present in the caecum in forty-nine out of fifty of his cases.

Reviews

GENETICAL SCIENCE

The unique place which the science of genetics holds in the public mind is due to the direct and tangible nature of its appeal to human interests, and also to the fact that its technicalities are relatively simple and easily grasped by the non-specialist. Furthermore, as Dr. C. C. HURST explains in his latest book, *The Mechanism of Creative Evolution*[1], it provides a most satisfactory account of a mechanism through the functioning of which evolution has proceeded. The gene rather than the cell has come to be regarded as the ultimate unit of life, and therefore is the necessary and ultimate basis for the creation of new species. In this book, which indeed is a most magnificent specimen of the publisher's art, the whole achievement of genetical science through its thirty years of experimentation is admirably presented. The principles of Mendelism are set forth with economy and precision. It shows how, in the early days immediately following the rediscovery of Mendelism, the enthusiasm of a small group labouring in a special field led to an isolation which favoured the development of simply and clearly defined concepts, and also to the development of routines of procedure which tended towards eventual stagnation. Next it is shown that from this stagnation genetics was rescued through its contacts with cytology. It was found that genetic phenomena could be referred to, and had to be explained by, corresponding cytological phenomena. A comprehensive survey of the results of genetical and cytological inquiry leads into attractive fields of interpretation and speculation which render this book both enjoyable and stimulating.

THE STREPTOCOCCUS

From the standpoint of human pathology the streptococci constitute one of the most important genera. Not only are they responsible for an enormous amount of disease, but the body's defences seem ill designed to meet their onslaught, and one encounter with them only too commonly leaves behind it permanent damage and a heightened susceptibility rather than an immunity. Our knowledge of the streptococci has not advanced as rapidly as in the case of some of the other pathogenic bacteria. They are elusive subjects to study, and their instability has rendered their classification a matter of supreme difficulty. During the last few years, however, considerable progress has been made in unravelling some of the problems connected with these micro-organisms, and the time is opportune for a review of the situation. It is for this reason that we welcome Dr. ANNA W. WILLIAMS'S monograph entitled *Streptococci in Relation to Man in Health and Disease*.[2]

Dr. Williams is entitled to speak with authority on this subject, for she has made it one of special study. Her monograph is not a colossal compendium of the literature, but a broad review of the subject in which the points of practical importance are not buried in a welter of facts. Opening with an historical sketch and a general classification in the first chapter, the author considers in turn the general characteristics of streptococci, their incidence and their effect on man, and streptococci in local infections. Elective localization is treated in an eminently sound and well-balanced manner, and in the discussion of local immunity due prominence is given to the excellent work of Gay on the part played by the cells of the reticulo-endothelial system in this respect. Chapter IV concerns streptococci in general infections, and following this are chapters devoted to erysipelas, scarlet fever, and septic sore throat. No doubt Dr. Williams is right in stressing the need and value of antibacterial serums—anti-endotoxic serums, to use her terminology—in combating infections due to haemolytic streptococci whose production of exotoxin is of a low grade, but not everyone will agree with the statement that scarlet fever is the only condition in which antitoxic serum is of use. Chapter IX is devoted to the relation between the various haemolytic streptococci, a tentative classification being given, and following this is a discussion of that difficult question of the relation of streptococci to rheumatic fever, arthritis, and allied conditions. This latter account is clear and unbiased, though one wonders how far the statement that the removal of tonsils and adenoid tissue has been followed by a lower incidence of rheumatic fever is supported by clinical experience. The aetiological relation between streptococci and such diseases as measles, epidemic encephalitis, influenza, poliomyelitis, and the common cold—usually considered as virus diseases—is accorded a separate discussion. This question is treated conservatively, and rightly so, and the opinions expressed in it will meet with widespread agreement. General considerations bearing upon our knowledge of streptococci terminate this valuable monograph. It has a good bibliography and an adequate index.

HAEMATOLOGY

It seems to be the custom for university professors of medicine and physicians of medical schools to publish treatises on haematology for the use of their own pupils. The personal mutual understanding between pupil and teacher is always desirable. *Practical Hematological Diagnosis*,[3] by Professor O. H. PERRY PEPPER and Dr. DAVID L. FARLEY, is an example of this class of book. Simply written, and following well-beaten orthodox lines, it will prove a useful guide to knowledge of haematological methods and diagnosis. In a future edition the authors should study compression—by deleting references to discarded methods and views, and by removing the frequent repetitions and redundancies, which are tiresome and only serve to swell the size of this volume. We do not need to be told at page 312 that evidence of blood regeneration is shown " by the presence of nucleated red cells and the increase in the reticulocytes." This has already been told in previous pages, and is a haematological commonplace. Generally, perhaps wisely, the authors are afraid of dogmatizing, and personal views are disappointingly absent or vaguely expressed. The uses of the haematocrit are strongly advocated ; it is admittedly an easy and rapid method for estimating roughly the blood cell volume, but the values obtained must of course be qualified by the degree of variability in size of individual cells. A similar qualification is necessary with the use of refractometers, which also measure blood cells in mass, and do not, as stated on page 55, measure single cells. The authors most justly have a lack of confidence in haemoglobinometers ; they agree that determination of oxygen capacity by the Haldane-Van Slyke method is best, but not practical for clinical application. No mention, however, is made of Haldane's haemoglobinometer so much in use in this country. The expression of Hb in grams is difficult for those who are more familiar with percentage values. The old estimation of 5,000,000 per

[1] *The Mechanism of Creative Evolution.* By C. C. Hurst. London: Cambridge University Press. 1932. (Pp. xxi + 365 ; 199 figures. 21s. net.)

[2] *Streptococci in Relation to Man in Health and Disease.* By A. W. Williams, M.D. London: Baillière, Tindall and Cox. 1932. (Pp. xii + 260 ; 8 plates. 29s.)

[3] *Practical Hematological Diagnosis.* By O. H. Perry Pepper, M.D., and D. L. Farley, M.D. Philadelphia and London: W. B. Saunders Company. 1933. (Pp. 562 ; illustrated. 30s. net.)

c.mm. as the number of red cells in normal blood is maintained in spite of recent observations by Osgood and others that the mean normal value is much greater than this; the limits for normal colour index now accepted are 0.84 to 1.11. The statement on page 351 that acute poisoning by carbon monoxide gas "changes the haemoglobin to methaemoglobin" is not correct, and should read "carboxy-haemoglobin." Much of Part III is of the nature of a catalogue to be used for reference; the footnotes will be very helpful for this purpose.

Those who need to economize time will welcome *General and Child Haematology*,[4] by Dr. W. M. FELDMAN, one of the Pocket Monographs on Practical Medicine series. The title is rather ambitious. It is a comprehensive collection of generally accepted statements about the blood, shortly and clearly expressed, and unencumbered by descriptions of methods or apparatus employed in blood examinations. The section on blood diseases is necessarily limited by space. The clinical haematology of Addison's anaemia and the effect of liver treatment in this disease are not described, probably because this is not a blood condition met with in children. The chapter on blood groups, dealing with the requirements of transfusion and with social and biological interests, are useful, though students of the subject will consult more extended treatises. This is a compact vade-mecum which will probably help the busy physician.

THE SOCIAL SERVICES

We have a remarkable book in *British Social Services: the Nation's Appeal to the Housewife and Her Response*.[5] It is by the Rev. J. C. PRINGLE. Those who are acquainted with the author's work as secretary of the London Charity Organization Society and rector of St. George's-in-the-East will not need the assurance given by Sir Charles Mallet in his "Foreword" that "it is packed full of practical and first-hand knowledge, based on continuous and sympathetic observation of the daily lives of working people," and that the pronouncements it contains are "both fearless and vivacious." To the less informed prospective reader this assurance can be renewed and the epithets confirmed. The book is the acceptance of a challenge, and the greater part of it is itself a challenge. At an international congress on social work in Frankfort last year Professor Gösta Bagge of Stockholm declared that "the decline in the feeling of personal responsibility and the extension of public relief" threatens the existence of modern society, that "complete reorganization and reform of present social policy can alone avert impending disaster," and that what is needed is "a characteristic criticism based on popular psychology . . . and a social policy inspired thereby." Such a criticism and the basis of such a policy are what Mr. Pringle sets out to supply and establish. He offers a forceful and thought-provoking challenge in defence of a position which has not recently been very popular in the field of social work in general, and which has been assumed by many people to be no longer tenable.

Mr. Pringle's thesis may be described as a development of the following propositions: (1) that the voluntary and individual supply of social needs is always and everywhere preferable to the compulsory and collective; (2) that the sympathetic and intelligent administration of the Poor Law is more effective for a large section of the people than even the best scheme for compulsory insurance; (3) that the family or household, and not the individual, must be taken as the essential economic unit, and that, within the family, it is the housewife and mother, and not the wage-earner, who should be regarded as of paramount importance; (4) that any successful efforts for promoting social welfare must be based upon an understanding of the psychology of the poor family and not upon a misunderstanding of its economics. The mere enunciation of such propositions by one of the most experienced of social welfare workers (though it should be said that the form in which they have just been stated is the reviewer's and not the author's) will itself be refreshing to many readers, and there is none but must be intrigued and interested by the vigour, ingenuity, and knowledge displayed in their support. Particularly will most medical readers be engaged by the way in which the author deals with some questions of national health insurance and with recent developments in public health services. Not everyone, even if he starts out free from socialistic or communistic bias, will be persuaded, but there is scarcely a page in the first 116 of Mr. Pringle's book which will not carry the conviction that he is displaying at any rate one aspect of the truth which must not be ignored.

Unfortunately after the eighth chapter there is a change. What has previously been a point of view becomes an obsession. The arguments and the principles advocated are applied to subjects and conditions which are not similar to those previously dealt with. The book loses its interest and effectiveness because it ceases to consist of arguments which, even if they be considered mistaken, have to be understood, weighed, and met, and becomes, for the most part, the vehicle for suggestions which the ordinary intelligent reader cannot regard seriously and can only smile at as extravagant or absurd.

SOME RECENT WORK IN PRACTICAL THERAPEUTICS

General Therapeutics,[6] by Drs. B. FANTUS and L. B. KARTOON, is a volume of the Practical Medicine Series of Year Books (series 1932). This book provides an account, with references, of some of the important advances in therapeutics made in 1932. The advertisement states that the authors give an account of 333 articles drawn from forty-two American, fourteen German, and six English, and various other journals. Inspection of the references shows that in fact about three-quarters of these are to American work. The volume therefore gives a partial rather than a general survey of recent advances in therapeutics. For example, no reference is made to any work on the new quinine substitutes plasmoquine and atebrin. Subject to this caveat regarding its restricted scope, the volume can be recommended to all who desire a short and readable summary of many of the important recent discoveries in practical therapeutics. The chief point that strikes the reader is the remarkable enterprise of American physicians and surgeons in applying advances in biochemistry and physiology to therapeutic purposes. The authors have shown good judgement in compiling their abstracts, for they give adequate details of all the work that they consider of sufficient importance to deserve mention. Moreover, they have included in their text reproductions of forty-two illustrations. The increase by geometrical progression of scientific literature is steadily increasing the difficulties of those who wish to keep in touch with important advances, and hence a critical and selective review of recent progress such as is furnished in this volume is extremely useful.

[4] *General and Child Haematology*. By W. M. Feldman, M.D., B.S. London: J. Bale, Sons and Danielsson, Ltd. 1933. (Pp. 96. 2s. 6d. net.)

[5] *British Social Services: the Nation's Appeal to the Housewife and her Response*. By Rev. J. C. Pringle. Foreword by Sir Charles Mallet. London, New York, and Toronto: Longmans, Green and Co. 1933. (Pp. xv + 175. 2s. 6d. net.)

[6] *General Therapeutics*. Edited by B. Fantus, M.S., M.D., and L. B. Kartoon, B.S., M.D. The Practical Medicine Series of Year Books. Series 1932. Chicago: The Year Book Publishers, Inc.; London: H. K. Lewis and Co., Ltd. 1933. (Pp. 448; 42 figures. 13s. 6d. net.)

DRUG ADDICTION IN EGYPT

In the Treatment of Drug Addiction by Phlyctenotherapy[7] Dr. P. MODINOS of the European Hospital of Alexandria gives a short but graphic description of the chief forms of drug addiction. He mentions in particular the appalling ravages of this vice in Egypt and quotes the official estimate of 500,000 addicts, which represents 3.8 per cent. of the population. His special method of treatment "phlyctenotherapy" consists in the injection of blister fluid. A blister of some 10 sq. cm. is produced on the patient, which yields from 10 to 15 c.cm. of serum, and this is injected intramuscularly. This method, which is a form of autotherapy, the author has used since 1929 in the treatment of seventy-six cases of drug addiction. He claims thirty-two cures out of forty-three heroin addicts treated, which is a very remarkable result. Details are given regarding the history of twenty-four cases. The author quotes evidence regarding the success of his method in other Egyptian hospitals, in Bangkok, and in America.

Towards the close of his book Dr. Modinos discusses how the traffic in dangerous drugs can be controlled, and asks why Egypt should be more plagued with drug addiction than any other country in the world. He points out that a few years ago this vice was threatening the national life of Egypt. In 1930 the number of addicts was estimated at 500,000, while 10,000 convictions were obtained in the indigenous courts for drug trafficking; moreover, the hospitals and asylums were flooded with addicts seeking cure. He pays a high tribute to the work of Russell Pasha, who has produced an enormous improvement in the past two years, and also to the excellent work done by the League of Nations. In the final chapter there is an interesting discussion on whether in the case of cannabis indica it is better to attempt to abolish its use or to control its consumption by a Government monopoly, and the author decides in favour of the former mode of action.

Notes on Books

In this country we are often accused of not taking our play seriously, and if such a statement is open to correction we can at least claim that we do not take it so seriously as our friends in America. In *The Child and Play*[8] the earnest student of this subject will find nothing left unsaid on this question from the scientific aspect. The material is based on the reports of many committees and subcommittees which were considered at a conference on child health and protection in Washington in 1930, and it will appeal chiefly to those interested in education and child welfare.

In *Golf Made Easy*[9] Dr. FORREST returns again to the theme of his previous publications, *The Basis of the Golf Swing* and *The Golf Stroke*, in which we are encouraged to believe that the way to become scratch players is simple if we can only acquire the method of turning the hands at the right moment in the right way. With minute instructions and many excellent photographs this solution of all golfing ills is set forth, though the earnest seeker after truth will need no small amount of mental concentration to get full benefit from the work. Golfers are, however, notoriously the most optimistic of mankind (if we except entrants for the Irish sweepstakes), and many will be ready to sample this medicine, though the reviewer himself, stricken with disease long reckoned constitutional, is not too sanguine of a cure.

[7] *Le Traitement des Toxicomanes par la Phlycténothérapie.* Par Dr. P. Modinos. Paris: J. B. Baillière et Fils. 1932. (Pp. 107. 24 fr.)

[8] *The Child and Play.* By James E. Rogers. Based on the reports of the White House Conference on Child Health and Protection. New York: The Century Company; London: D. Appleton and Co. 1932. (Pp. 205; illustrated. 8s. 6d. net.)

[9] *Golf Made Easy.* By J. Forrest, M.B. London: T. Murby and Co. 1933. (Pp. 68; 214 photographs. 10s. net.)

Mountains may seem as far removed from medical science as chalk from cheese, but since the *London Mercury* has devoted an editorial page to the review of a mousetrap, we feel it excusable to give a few lines to the recently published book, *Alps and Men*,[10] by G. R. DE BEER. Switzerland claims many friends in this country, both as a holiday ground and as a health resort. Those who love it and are interested in its history during the last 200 years will find plenty of entertainment in this work. It draws largely upon the diaries of famous travellers and tourists in the country from 1750 onwards—British aristocrats on the "grand tour," refugees from the French Revolution, generals, scientists, explorers, schoolmasters, poets, writers, and composers—even the famous Bishop of Derry and Earl of Bristol, to whose memory there is an "Hotel Bristol" in almost every city in Europe. Copious illustrations are provided, and the author, with his expert knowledge of the country, has succeeded in producing a pleasing volume.

The tenth volume (Scurvy–Pineal Gland) of the New German Dictionary of Practical Medicine,[11] edited by Professor GEORG KLEMPERER and the late Professor FELIX KLEMPERER, marks the conclusion of this monumental work, which began five years ago. Supplementary volumes, however, will be published at regular intervals. The tenth volume contains the following contributions by well-known writers: scurvy, by Professor W. Stepp and Dr. Voit of Breslau; scrofula, by Dr. K. Klinke of Breslau; parasitic stomatitis, by Professor A. Buschke and Dr. A. Joseph of Berlin; social hygiene, by Dr. A. Fischer of Carlsruhe; sporotrichosis, by Dr. A. Joseph; disorders of speech, by Professors E. Forster of Greiswald and T. S. Flatau of Berlin; sprue, by Professor C. Hegler of Hamburg; syphilis, by Professor Buschke and Dr. A. Joseph; syringomyelia, by Professor H. Schlesinger of Vienna; tabes, by Professor A. Goldscheider of Berlin; tetanus, by Professor H. Hetsch of Frankfurt; thymus, by Professor W. Berblinger of Jena; rabies, by Professor Hetsch; trauma as cause of internal diseases, by Professor R. Stern of Breslau; trichinosis, by Professor J. Bongert of Berlin; tropical diseases, by Professor P. Mühlens, Dr. E. G. Nauck, and Dr. Curt Sonnenschein of Hamburg; soft chancre, by Professor W. Frei of Berlin; uraemia, by Professors F. Volhard and E. Becher of Frankfurt; urticaria and Quincke's oedema, by Professor Hansen of Heidelberg; varicose veins, by Professor Baetzner of Berlin; dental diseases and internal medicine, by Professor J. Citron of Berlin; diseases of the teeth and jaws, by Professor G. Axhausen of Berlin; and the pineal gland (zirbel), by Professor Berblinger of Jena. A list of the contributors and a subject index are contained in a special volume.[12]

Not least among the activities of the Council for the Preservation of Rural England is the publication from time to time of literature which is designed both to further the principles for which the council stands and to draw public attention to the beauty and interest of the English countryside. Both these objects have been achieved in *The Penn Country of Buckinghamshire*[13]—issued by the Penn Country Branch—an attractive volume of 128 pages, with sixty-two illustrations, many of which have been specially produced and are of great charm. A foreword is supplied by the Prime Minister, whose home is in the heart of this country, and among the prominent contributors are Mr. G. K. Chesterton, Major Coningsby Disraeli (on Hughenden and Disraeli), the Hon. Sir Frank MacKinnon, Mr. C. H. Biddulph-Pinchard, and Mr. Clough Williams-Ellis.

[10] *Alps and Men.* By G. R. de Beer. Pages from forgotten diaries of travellers and tourists in Switzerland. London: Edward Arnold and Co. 1932. (Pp. 255. 16s. net.)

[11] *Neue Deutsche Klinik.* Herausgegeben von Professor Dr. Georg und weiland Felix Klemperer. Zehnter Band. Berlin and Wien: Urban und Schwarzenberg. 1932. (Pp. viii + 797; 181 figures, 2 plates. Geh. RM.30, Geb. RM.36.)

[12] *Sachverzeichnis.* (Pp. 143. Geh. RM.6, Geb. RM.8; Gesamtwerks, Geb. RM.368.)

[13] *The Penn Country of Buckinghamshire.* With a foreword by the Prime Minister. Published for the Penn Country Branch of the Council for the Preservation of Rural England by Evans Bros., Ltd., London. 1933. (Pp. 128; 62 figures. 5s. limp covers; 7s. 6d. cloth; 21s. limited *édition de luxe.*)

WHAT TROPICAL MEDICINE OWES TO ANIMAL EXPERIMENT

STEPHEN PAGET MEMORIAL LECTURE BY SIR LEONARD ROGERS

In connexion with the annual meeting of the Research Defence Society on June 22nd, with Lord LAMINGTON presiding, Sir LEONARD ROGERS lectured to a very large audience in the theatre of the London School of Hygiene and Tropical Medicine on "The Saving in Suffering of Man and Animals due to Medical and Veterinary Research, with Special Reference to the Tropics." The lecture was illustrated by lantern views.

Sir Leonard Rogers began by saying that the sufferings of animals, as well as of man, had been immensely reduced through animal experiment. This might safely be affirmed as the universal opinion of all the scientists who were best qualified to judge at the present day. It followed that if the opponents of research had succeeded in their long-sustained efforts to prevent such experiments they would have been guilty of the most appalling and wholesale cruelty, not only to mankind, but to the animals they professed to love. The saving of life and suffering due to physiological and therapeutic experimental research had been dealt with by previous Stephen Paget lecturers, but in no field had this been more conspicuous during the last three decades than in tropical diseases, and of the work in this field he proceeded to give a brief account.

Dealing first with snake bites, Sir Leonard Rogers said that all the essential knowledge of antidotes and treatment was due to animal experiments. Many years ago Calmette had made an anti-cobra serum which could neutralize the venom in the system, and save life if given in time. It became also known that permanganate of potash mixed with the venom of any snake rendered it inert, and Sir Lauder Brunton invented a small sheathed lancet with a compartment for permanganate for immediate use in the absence of serums, by incising the site of the bite. The Humane Act of 1876 prevented Sir Lauder from testing its practical value on animals, and it was not until 1903 that, at Sir Lauder's suggestion, the lecturer demonstrated its value by a few experiments, with the result that within two years he was able to record ten recoveries among twelve persons who had been bitten by deadly snakes. And what was the suffering inflicted in those few experiments? The few cats which were permitted to come round from the chloroform had very small wounds—of course, dressed antiseptically—and showed no evidence of pain. The only trouble he had was that several of them would come up to him to have their heads rubbed.

In the case of cholera, the most serious epidemic disease in India, the lecturer showed tables illustrating the striking reduction in case mortality among Calcutta hospital patients. This had been brought about by the use of intravenous injections of hypertonic and alkaline salines and the oral administration of permanganate pills. The clue to the use of permanganates was furnished by the snake venom work just mentioned, and he had been able to show by a few simple experiments on pigeons that small quantities of permanganate would neutralize the toxins of the cholera bacillus. He also showed the statistical results of the use of anti-cholera inoculation. A single dose of the present improved vaccines had afforded very valuable protection. In short, experimental research had offered the means of checking the spread of cholera and of treating effectually the sufferers from the disease. The virulent type of small-pox was now more prevalent in India than elsewhere, so that it might be looked upon as mainly a tropical disease. He showed figures illustrating the great reduction in the severity of the Indian outbreaks, coincidentally with a rise in the yearly vaccinations. As there had been no appreciable change in the sanitation of the Indian villages these data exposed the fallacy that the reduction in small-pox in the second half of last century was due to sanitary improvements and not to vaccination.

The only specific curative treatment in the dangerous toxic forms of bacillary dysentery was the antitoxic serum, which had to be made by injecting horses with increasing doses of the bacterial toxins, to which they soon became accustomed. After speaking of amoebic dysentery and liver abscess and its scientific treatment, he passed on to plague, and gave an account of the discovery of an efficient plague vaccine by Haffkine and its subsequent improvement. With regard to Malta or undulant fever, all the most important knowledge of this disease had been derived from animal experiments; for the causative organism was discovered in 1886, and was proved to be such by experiments on monkeys carried out by one of the greatest of British research workers, David Bruce. The same worker discovered the mode of infection to be the milk of perfectly healthy goats. Sir Leonard Rogers next retold the story of anti-typhoid inoculation in the Army during the great war, and of how the work might readily have been frustrated had the strenuous efforts of fanatics been successful. Apparently these fanatics had persuaded themselves that all the medical expert advisers of every army in Europe and America were wrong as regards the protective value of anti-typhoid inoculation, and that they, the prohibitionists, only were right, although presumably it was against their principles to have any scientific experimental investigations carried out, whereby alone such a complicated subject as the production of immunity in the animal system could be elucidated.

More specific curative remedies for widespread diseases had been discovered by animal experiments in about thirty years than had accrued from three thousand years of empiricism. Cinchona bark for malaria and ipecacuanha for amoebic dysentery appeared to be the only really curative remedies for serious specific diseases that had been discovered by empirical measures. Moreover, there was scarcely an important and commonly used drug in the *British Pharmacopoeia* the efficient employment of which did not depend on knowledge obtained by animal experiment. He instanced in this connexion the salvarsan group of drugs used in yaws and relapsing fever, the cure of sleeping sickness by Bayer 205 and tryparsamide, the antimony cure of kala-azar or black fever, and carbon tetrachloride in hookworm disease. Finally, he mentioned the two invaluable synthetic remedies, plasmoquine and atebrin, in the treatment of malaria. If the abolitionists had succeeded in their efforts fifty, or even thirty, years ago these potent new remedies would never have been discovered.

THE DEBT OF VETERINARY MEDICINE

Passing on to the benefits which animals themselves had derived through animal experiments, he mentioned first the instance of rinderpest or cattle plague, and the wonderful results which had followed the use of anti-rinderpest serum. Still better results were being obtained from protective inoculation against haemorrhagic septicaemia of cattle and against black quarter, another soil infection disease of young cattle. In the half-century that had elapsed since Pasteur's dramatic demonstration in sheep of the life-saving value of his protective vaccination against the invariably fatal effects of the inoculation of virulent anthrax bacilli, untold millions of animals had been saved from suffering and death by the use of his and later improved vaccines. He went on to mention swine erysipelas, braxy of sheep, joint-ill of foals, tetanus, swine fever, tropical ulcers, and many other conditions of animals in which immense relief had come about as the result of scientific experiment. The latest illustration of this was in connexion with the work done on distemper of dogs. It had been found that a healthy dog could be given lasting protection against distemper by the inoculation of a vaccine containing the killed distemper organisms, followed by inoculation of living virus a fortnight later. A survey undertaken in connexion with the recent *Field* investigation had shown that the incidence of distemper among 650 inoculated hounds belonging to twenty-three different hunting packs was only 1.4 per cent. and the death rate 0.3 per cent., whereas without inoculation the incidence among young foxhounds in this country was nearly 100 per cent., while the death rate was usually 50 per cent.

In conclusion, Sir Leonard Rogers said that literally millions of animals were being saved in civilized countries every year by the use of serums and vaccines discovered and made by means of animal experiments and in no other way. No scientist of standing would deny that some suffering was inflicted on animals in this work, but he maintained, with confidence, that the reduction of the sufferings of aimals as a class was many thousand times greater than any suffering inflicted on them in the discovery and preparation of these substances. Their opponents accused the scientists of cruelty. Surely the boot was on the other foot, for it was the prohibitionists, if they could have had their way, who would have added enormously to the sufferings of the animals which they held in such regard.

At the conclusion of the lecture a vote of thanks to Sir Leonard Rogers was moved by Sir THOMAS BARLOW and seconded by the Hon. Sir ARTHUR STANLEY.

The annual report presented to the business meeting of the society which followed drew attention to three outstanding reprehensible types of activity by the anti-vivisectionists: (1) active opposition and canvassing against the appeals for funds by hospitals and veterinary institutions; (2) propaganda implying that patients in the poor wards of hospitals were liable to be vivisected; and (3) canvassing consumers and friends to boycott manufacturing firms which scientifically tested their food or drug products before allowing them to be offered for sale to the public. In regard to the last-named activity, the committee trusted that no reputable firm would be intimidated by such actions, as the general public fully realized that the scientific standardization of drugs and food products was essential for the public good.

ST. GEORGE'S HOSPITAL

BICENTENARY COMMEMORATION

St. George's Hospital has just celebrated its bicentenary by a religious service at St. Paul's, Knightsbridge, and a reception at the hospital, besides which there is to be a festival dinner at the Mansion House on July 5th, from which it is hoped that the funds of the charity may substantially benefit. Since these celebrations were announced last March a leading article and a special article in the *Times* of June 13th have semi-officially informed the public that the hospital authorities are contemplating the sale of the site of the buildings at Hyde Park Corner and their re-erection in enlarged and more modern form on a more spacious site further from the centre of London. No more appropriate occasion could have been found for the writing of a short history of St. George's Hospital and its Medical School, and Dr. Joseph Blomfield has availed himself very acceptably of it in the commemorative volume published this week.[1]

FROM PETTY FRANCE TO HYDE PARK CORNER

Any history of St. George's, if it is to be adequate, must begin with the foundation of the Westminster Infirmary, the first general hospital in London to be supported by voluntary contributions, which was established in Petty France, Westminster, a street made famous by the one-time residence of John Milton and more recently familiar by the louring bulk of Queen Anne's Mansions. The infirmary was opened in the year 1720 under the name of the Westminster Public Infirmary. After two removals the governors of the charity, in 1733, found themselves in danger of having their house collapse, and other premises were sought for. Houses in James Street (now called Buckingham Gate) and in Castle Lane were offered, near where the Congregational Church and schools now stand, and this site was favoured by a majority of the governors. Westminster was at that time much more crowded than it is now and by a poor labouring class. The situation, moreover, was low and not far removed from the marshy ground around the Tyburn stream. These reasons moved an influential minority of the governors, including all the physicians and surgeons to the infirmary, to recommend removal from the slums to what was then the semi-rural suburb of Knightsbridge. Here, on higher ground at Hyde Park Corner, stood Lanesborough House, which was to be let at a rental of £60 per annum and which, in the opinion of the physicians and surgeons, was

> "so near that the Governors might attend without inconvenience and yet far enough for the patients to have the benefit of a country air; which in the opinion of the physicians would be more effectual than physick in the cure of many distempers, especially such as mostly affect the poor, who live in close and confined places within these great cities."

This expression of opinion is surprising in that age of active treatment with drugs and counter-irritants. There followed a lively dispute carried on in a paper war. It ended in the majority establishing the infirmary at Castle Lane, which was afterwards to be removed to the present site of the Westminster Hospital in Broad Sanctuary, while the minority with substantial financial backing opened what was at first called "the Hospital near Hyde Park Corner."

Lanesborough House was a substantial three-storied red-brick building standing on the south side of Knightsbridge, at the corner of Grosvenor Gardens and subsequently just to the west of the Hyde Park Corner turnpike. In plan it may be represented as an upright H, with its central block and front door looking north across Knightsbridge to Hyde Park. After various alterations and additions this was the form it assumed, as may be seen in Horwood's plan of 1792, which was reproduced on a reduced scale in this *Journal*.[2] At length the old building became beyond repair, and Mr. Wilkins, the architect of the National Gallery, was commissioned to erect a new hospital. This he did at a cost of £40,000, and apparently without its becoming necessary to close the hospital at any time. This seems to have been achieved by changing the position of the entrance from the north to the east, so that access could be obtained behind the old building. The new building was complete in 1834, and still stands, although with many additions.

That the physicians were justified in claiming the benefits of country air for the new hospital may be concluded from a study of the maps of the period. Then, as now, Hyde Park and Kensington Gardens stretched uninterruptedly to the north-west; to the south and west there were fields and market gardens. To the east, as now, were the Green Park and the gardens of Buckingham House. On the north side of Piccadilly building had not then extended beyond Clarges Street, where, until 1761, the turnpike-gate was situated. Although Grosvenor Square was built, most of Mayfair was open fields, with only occasional buildings. Beyond the boundaries of Hyde Park and Kensington Gardens, which are the same now as then, lay open country and villages such as Paddington and Kensington.

The first general board of the founders of the hospital was held at the house of Mr. Carey, in Golden Square, on October 19th, 1733. Six physicians and three surgeons were elected medical officers, all of whom declared their "willingness to serve without fee or reward." These were the forerunners of a notable band of men, some of whom became world-famous. Space will not allow us to follow Dr. Blomfield in his interesting biographical sketch of them, but the names of Thomas Young, of John Hunter, who died in the hospital, of Brodie, Edward Jenner, and Baillie, must not escape mention.

THE MEDICAL SCHOOL

The physicians and surgeons established the Medical School in buildings in Kinnerton Street, Knightsbridge,

[1] *St. George's, 1733–1933.* By J. Blomfield, O.B.E., M.D. Copies can be obtained from the Medici Society, 7, Grafton Street, W.1, or St. George's Hospital, S.W.1. (Pp. 120; illustrated. 5s., or de luxe £2 2s.)

[2] *British Medical Journal*, 1929, i, 364.

rented from Sir Benjamin Brodie, including a lecture theatre and dissecting room, in the year 1836. These premises continued to be used until 1868, when new buildings were erected adjoining the hospital on land leased at a nominal rent by the Grosvenor Estate. These new buildings included a museum and library.

Before the establishment of this hospital school St. George's students were dependent for their scientific education on Lane's Grosvenor Place School, which continued to exist concurrently with it until it was closed in 1863.

In 1904 the then Prince of Wales (now King George V), appointed a committee to inquire into the financial relations between hospitals and medical schools in London. In accordance with the report of this committee St. George's gave up the teaching of anatomy and other allied sciences and became a clinical school. Relying on certain supposed assurances which were not carried into effect, the school at first suffered a great loss in numbers. It is now flourishing, and looks forward to a long career of usefulness, wherever the situation of the hospital may be.

HOSPITAL MIGRATIONS

If, and when, St. George's migrates from Hyde Park Corner, it will not be the first of the London medical schools or hospitals to do so. One of the most ancient, St. Thomas's, under the pressure of necessity, severed its long association with its neighbour, Guy's, and moved from Southwark to Lambeth more than sixty years ago. King's College Hospital, which is one of the younger hospitals, left the neighbourhood of the Strand, whence the slum dwellers of Clare Market and Drury Lane had disappeared, and removed a few years ago to Denmark Hill, whither its medical school is now following it. In neither case, we believe, has the removal been regretted by those most concerned.

It has been obvious to even the casual observer that St. George's has for years been occupying a valuable site which is too small for it, and it has seemed equally obvious that the site might be sold for a large sum and the proceeds devoted to the purchase of a larger yet less costly site near the middle of the area which the charity serves. But until lately it has not been found possible to put such a plan into practice. Now, however, the authorities have assured themselves that in the course of the next few years such a transaction will become possible. If so, another of the remaining landmarks of the neighbourhood of Hyde Park Corner will disappear.

HEALTH OF SCOTLAND

DEPARTMENT'S ANNUAL REPORT

The fourth annual report of the Department of Health for Scotland, dealing with the year 1932, has just been issued.[1]

Maternity and Child Welfare Services

The year 1932 showed the lowest birth rate recorded in Scotland, and a maternal mortality rate which, although higher than that for 1931, was lower than the average of the preceding five years. The infant mortality rate increased to 86 per 1,000 births as against 82 for 1931, and 85 for the average of the preceding five years. There were 579 deaths of women from diseases and accidents of pregnancy and childbirth, representing a rate of 6.4 per 1,000 registered births ; 246 of the deaths were attributed to puerperal sepsis. An inquiry has been undertaken into the circumstances attending births in Scotland over a period of six months from the middle of December, 1932, and it is hoped that this will throw some light on maternal mortality and morbidity. Deaths of children under 1 year numbered 7,841 ; the most important causes were congenital debility, premature birth, malformation, etc., in 43 per cent., bronchitis and pneumonia in 24 per cent., and diarrhoea, measles, and whooping-cough in considerably smaller numbers. Schemes for maternity and child welfare services are now in operation in all areas in Scotland except one, and the school health schemes have been continued by the reconstituted education authorities. With a view to securing a higher standard among midwives in Scotland a grant has been offered by the Department since 1927 to encourage trained nurses to undertake midwifery training, and the number of applications for this grant during 1932 was seventy-seven, making a total of 347 since 1927. The number of practising midwives in Scotland is estimated at 5,500, of whom 1,400 are in independent practice. Applications by midwives for medical assistance, which are on the increase, are made in approximately one out of every four confinements. The Department's regulations requiring notification of puerperal pyrexia in addition to puerperal fever have been effective in securing that cases of sepsis are brought earlier to the notice of medical officers of health, and arrangements have been made by most local authorities for consultant service, bacteriological examination, skilled nursing for home cases, and hospital treatment to be available for practitioners in these cases. The provisional figures for 1932 have shown a total of 1,206 notifications of puerperal fever and 1,081 of puerperal pyrexia. During the year 1,652 cases of ophthalmia neonatorum have been notified—as compared with 1,443 in 1931—of which 805 were notified in Glasgow. A clinical analysis of the 805 notifications, however, has shown that only 5 per cent. were of gonococcal origin. The number of schools inspected was 3,400, with a total of 831,792 children on the registers, of whom 247,272 in selected age groups were examined ; in addition, 128,021 referred by teachers or parents were examined, and 101,456 previously found defective were re-examined. The total number of examinations therefore dealt with 65 per cent. of the children. A distinct improvement in nutrition has been observed, despite the economic depression, and the percentage of children of " average or above average " nutrition has risen from 91.9 in 1923 to 94.5 in 1932, while the proportion of " below average " has diminished from 7.9 to 5.3 per cent., and of " very bad nutrition " from 0.3 to 0.2. Throughout Scotland generally there has been a gradual and consistent fall in the percentage of cases showing marked rickets. It is noted, however, that the medical officer of health for Glasgow reports that there are indications that rickets among pre-school children shows a tendency to increase, and the same fact has been noted in other industrial areas. Enlarged tonsils and adenoids have shown a definite increase over the past ten years ; some of this, however, is due to more frequent diagnosis and to the extension of facilities for treatment.

Infectious Diseases

There were increases in scarlet fever and pneumonia, and decreases in diphtheria and tuberculosis. The total number of all known cases of tuberculosis of various forms was 16,064, giving an incidence of 3.32 per 1,000 of the population. The total accommodation of beds reserved for tuberculosis is approximately 5,000, and the dispensaries and clinics now number forty-two. The number of centres for the treatment of venereal disease remains at fifty-two, as in the previous year. New patients to the number of 9,759 came forward, of whom 6,307, or 65 per cent., were found to be infected with venereal disease ; 284,372 attendances were made by infected persons for treatment. The report regards as a satisfactory feature of the work of these centres, indicating a growing confidence among the public to secure early and competent treatment, that an increasing number of patients who apply are found not to be suffering from venereal disease. On the other hand, the total number of defaulters who ceased to attend before being discharged as cured amounted to 53 per cent. ; this, however, was smaller than in previous years.

Hospital Services

Owing to considerations of economy there were few proposals for development of hospital facilities involving immediate expenditure, and only one scheme of

[1] Cmd. 4338. H.M. Stationery Office, 1933. (3s., postage extra.)

reorganization, that of Edinburgh, was formally approved by the Department during the year. This scheme removed from the category of Poor Law hospitals the institutions formerly known as Craigleith and Seafield Hospitals, and Pilton Infectious Diseases Hospital; these institutions have been converted to the purposes of general hospitals, and, to a certain extent, have been adapted for the instruction of students and the provision of facilities for clinical research. The Department has suggested the constitution of a Hospital Advisory Council for the south-eastern region of Scotland to the favourable consideration of the Town Council of Edinburgh.

Highlands and Islands Medical Service Fund

At the end of the year the doctors under agreement to render service under this scheme numbered 153. Surgical services, based on the voluntary hospitals at Stornoway, Kirkwall, and Lerwick, continue to demonstrate that they are indispensable to the communities they serve, and the grants are being continued, though at a somewhat reduced rate. Surgical services have also been inaugurated in Caithness, in the Lochaber district, in Sutherland, and in South Uist. Assistance has been granted by county councils in Inverness and Zetland for the provision of houses for doctors, and on the island of Eriskay for a district nurse. The expenditure, including the grant-in-aid of £70,000 and £10,000 transferred from the Scottish national health insurance in respect of mileage, amounted to £81,870.

National Health Insurance

Important developments of the national health insurance scheme were made by the National Health Insurance and Contributory Pensions Act, 1932, which for the most part came into effect on January 1st, 1933. The principal changes made by the Act relate to the rates of sickness benefit for women, the extent of free insurance to contributors who have ceased to pay contributions owing to cessation of employment, and arrangements in regard to arrears of contributions. The rates of disablement and sickness benefits were reduced, but it was pointed out by the Government actuary that the new rates would only be able to support the benefits if the claims were maintained at a level at least 10 per cent. lower than the average claims for 1928–30. As a result of the passing of the 1932 Act, an unemployed person who at the time of his becoming unemployed had acquired a fairly substantial standing in insurance, will be retained in full insurance for a period of from two and a half to three years if he is unable to continue insurance payments owing to inability to obtain work. This will carry on free insurance up to not later than December 31st, 1935. The membership of approved societies under the insurance scheme amounted to 1,195,000 men and 630,000 women, a total of 1,825,000 insured persons. An upward movement in the rate of expenditure on cash benefits during 1932 is recorded, the total for sickness and disablement benefits during 1932 having been £1,786,000 as compared with £1,664,000 in 1931. The excess was mainly among the insured men, and from the Department's investigations appears to have been due largely to the severe epidemic of influenza which ran its course towards the end of the year. Examinations of insured persons by the Regional Medical Service showed that the great bulk of cases referred were submitted by approved societies; the falling off in the number of references submitted by practitioners, however, has continued. The total number of cases referred was 62,294; in 26,019 of these the practitioner's certification was upheld, and in 11,987 it was reversed. The charge on approved societies for medical benefit was maintained during 1932 at the same rate as in recent years—namely, 12s. 1d. per person—and from the fund so provided there was made payable to insurance practitioners £863,550 in capitation payments, £52,500 in payment for mileage, and £10,000 in respect of medicines and appliances provided by dispensing doctors. The payments to chemists and doctors in respect of medicines included sums totalling £9,200 for insulin. The report judges that the medical service given by insurance practitioners may be regarded as of a satisfactory standard from the fact that during the year under review only thirty-two cases of alleged failure on the part of practitioners to carry out their obligations were reported. Twelve of these were dismissed, and in nineteen penalties were inflicted aggregating £159 8s. In one case only was the practitioner's name removed from the list in consequence of breaches of his term of service.

[*To be concluded*]

THE UNIVERSITY OF LONDON

FOUNDATION STONE OF BLOOMSBURY BUILDINGS LAID BY THE KING

On Monday last, June 26th, with appropriate ceremonial, the foundation stone of the new home for the University of London in Bloomsbury was laid by the King. The Queen was also present, and a great assembly, principally representative of British, Imperial, and foreign universities and learned societies, gathered in honour of the occasion. The ceremony took place at the south-western corner of the new site, opposite the northern façade of the British Museum. Here a dais was erected confronting a gigantic semicircular marquee accommodating three thousand guests and students, and the academic gowns everywhere worn made it a brilliant spectacle. The principal procession to the dais to await the King and Queen was formed at the London School of Hygiene and Tropical Medicine, which is adjacent to the site. It was led by the official staff of the University, the standing committee of Convocation, the Senate, and the Court. It included four former Vice-Chancellors (Sir Holburt Waring, P.R.C.S., Professor E. A. Gardner, Sir William Beveridge, and Dr. J. Scott Lidgett), and the Chancellors of many sister universities, among them those of Dublin (Lord Iveagh), Aberdeen (Lord Meston), Glasgow (Sir Donald MacAlister), Leeds (Duke of Devonshire), Birmingham (Lord Cecil of Chelwood), Victoria University of Manchester (Lord Crawford and Balcarres), Durham and Queen's University, Belfast (Lord Londonderry), Cambridge and St. Andrews (Mr. Baldwin), and the Vice-Chancellor of Oxford (Rev. F. J. Lys). After these came the Chairman of the London County Council, the Lord Mayor of London, the Mayor of Holborn, the Public Orator (Professor Harold Butler), the Principal of the University (Dr. Edwin Deller), Sir E. Graham-Little, M.P., the Chairman of the Court (Lord Macmillan), the Chairman of Convocation (Mr. S. L. Loney), the Vice-Chancellor (Professor L. N. G. Filon), and the Archbishop of Canterbury. The Chancellor of the University, the Earl of Athlone, brought up the rear. In all, nearly 150 universities and academies joined in the celebration, and the colours of the East were very noticeable.

Their Majesties, who were accompanied by Lord Irwin, the Minister for Education, were received by the Chancellor of the University and the Mayor of Holborn, and after certain presentations had been made the Chancellor in an address to the King spoke of the abiding faith which those to whom the affairs of the University were entrusted felt in her great future. The University, he said, had never lacked friends, and, with great and honoured exceptions, those friends had been mainly members of her own family; yet she had never possessed a home of her own, suited to her special needs, and worthy both in spirit and in form of the great city whose name she bore.

"The ceremony which your Majesty has graciously consented to perform this afternoon marks the commencement of a new era, for the University of London is standing upon the threshold of the great inheritance she has built up for herself, a heritage which means nothing less than that she shall become not only the University of London in name but in deed and in reality London's University. That London and the City of London are awake to this fact is evidenced by the enthusiasm with which they have welcomed the idea of a central home for their University and by the most generous manner in which they are helping to further that

end. The splendid buildings which will arise here in the heart of London above and around the stone which your Majesty is about to lay will be the living embodiment of that idea. . . . We may not all be here to see the completion of those buildings, but we are well content that what is being done to-day marks the beginning of one of the greatest periods in the history of the University of London."

THE KING'S SPEECH

The King, after expressing his pleasure at being present, and thanking the Chancellor for his loyal address, said that the University "has waited long for a home that she could truly call her own, and we all now rejoice to see the beginning of a finely planned group of buildings which will serve as headquarters for her far-reaching work and influence. I count it of good omen that in these difficult times we have the opportunity of showing an unshaken faith in the inestimable benefits of knowledge and education. No less auspicious is the alliance in this good cause between friends of education in the Old World and the New. The Rockefeller Foundation, our own Government, the citizens of London in corporate and in private capacities, all share in a memorable achievement." After a welcome to the representatives of Dominion and foreign universities, his Majesty concluded: "Bloomsbury has long been a centre of learning, and it is appropriate that we should inaugurate here, on this great site, a stately plan of buildings worthy of London and of her University. I hope that this noble enterprise, which has begun so well, may attain an early and triumphant completion."

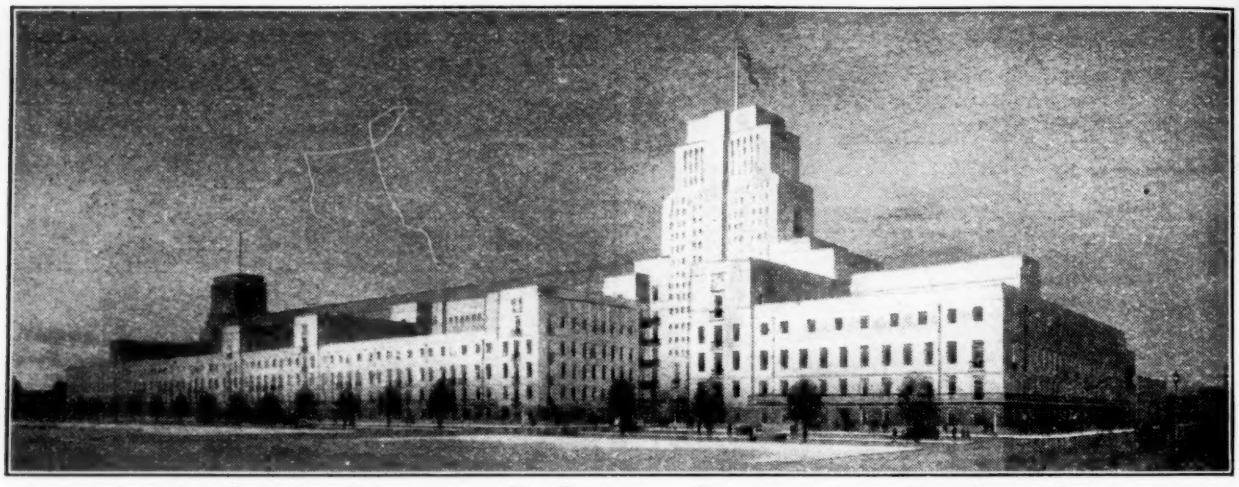
After prayers by the Archbishop of Canterbury, the King duly laid the foundation stone, first depositing in a cavity under it a casket containing the University Calendar, the Order of Proceedings, a copy of a brochure issued for the occasion, a newspaper of the day, and certain current coins. The trowel was handed to him by the architect, Mr. Charles Holden, and a silver mallet and spirit level by the Vice-Chancellor. His declaration that the stone was "well and truly laid" was followed by a fanfare of trumpets. Before their Majesties left, a number of further presentations were made, and they signed the visitor's book, and accepted specially bound copies of a descriptive account of the new buildings.

THE BLOOMSBURY SITE

The scheme thus inaugurated, whereby a new centre of University life in London is established, and some 10½ acres of Bloomsbury will be entirely rebuilt, has already been outlined in these columns. As the Earl of Athlone stated in his address to the King, although the University will in a few years' time celebrate its centenary, its first charter having been granted at the end of the reign of William IV, up to now it has had no worthy centre or focus. In 1927 the Rockefeller Foundation made a magnificent offer of £400,000 towards the purchase of a site on which adequate headquarters for the University might be built. The site in Bloomsbury was acquired for £525,000. It is bounded on the south by Montague Place, on the east by Russell and Woburn Squares, on the north by Gordon Square and Byng Place, and on the west by Malet Street, which, from being a commonplace thoroughfare, bids fair to become in a few years' time one of the great streets of the capital. Although the students of the University are scattered over a large number of schools and institutes, the greater number attend colleges situated within a radius of one mile, and University College itself is at the northern extremity of the site.

The work of development will be carried out in stages spread over many years. The vertebrate type of planning has been adopted for the whole area, so that the composition will be impressive even while incomplete. Excessive height on all frontages has been avoided, and the adjacent houses will not be overlooked. The exterior of the buildings will be faced to a height of about 15 feet with granite, and above with Portland stone; the core of the main structure will be of brick. A series of quadrangles will be laid out as gardens, with grass lawns. The first building to be erected will be the senate house and official headquarters; adjoining this will be the University hall, where ceremonial will be staged. The library, where for the first time the literary and other treasures of the University can be displayed to advantage, will probably be placed above the senate house and will occupy part of the tower, which, 200 feet in height, will dominate the whole group.

There is an idea in some quarters that all the colleges and institutions of the University will be transferred to this site. Such a plan would be quite impossible; the sites of some of the colleges are themselves as large as the University site. Moreover, such a concentration, even were it feasible, would not be advantageous, for the needs of the vast number of students who live in all quarters of London at home or in lodgings or hostels have to be considered. Again, the medical schools must, of course, continue to be attached to the great London hospitals. But from the very fact that some of its constituent elements must be considerable distances apart, the establishment of a worthy centre of the University becomes all the more important.



ARCHITECT'S PERSPECTIVE DRAWING OF THE NEW BUILDINGS IN BLOOMSBURY FOR THE UNIVERSITY OF LONDON.

The returns from universities and university colleges in receipt of Treasury grants for the academic year 1931–2 has just been issued by the University Grants Committee (H.M. Stationery Office, 1s. 3d.). Of the 48,510 full-time students to which this publication relates, medicine and dentistry claims 10,379; of these 9,107 were men and 1,272 women. The schedule of degrees and diplomas obtained during the year and analysed according to faculties gives a total of 960 degrees and 1,176 diplomas under "medicine including dentistry" in Great Britain.

FIG. 1.—Jane D. Showing redundant pelvic colon with loop fixed at two extremities—a suitable axis of rotation for a volvulus.

FIG. 2.—Katherine F. Showing long sigmoid colon (of second type) with torsion of mucous folds higher up.

FIG. 3.—Charles P. Showing enormous loop of pelvic colon on right side, with twining over of coils to form a volvulus.

FIG. 4.—Leonard E. Large redundant loop of pelvic colon running up into right abdomen—potential volvulus.

UNIV. OF MICH.

Fig. 1.—The patient in 1906.

FIG. 2.—The patient in 1931.

FIG. 3.—The patient in 1931.

FIG. 4.—Skiagram of skull, May 15th, 1931.

Fig. 5.—Skiagram of skull, July 9th, 1932.

FIG. 6.—Skiagram of femu
September 28th, 1932.

A. WILFRID ADAMS: MULTIPLE GASTRIC ULCERS

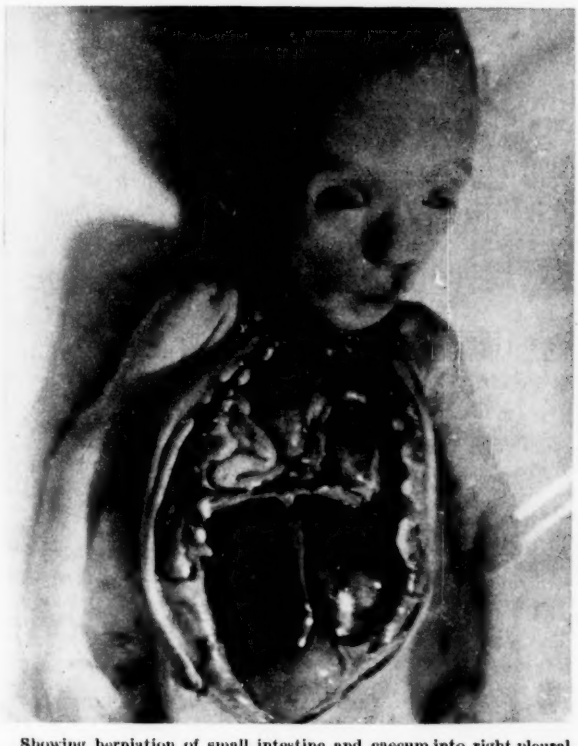
FIG. 1.—Before operation. Showing three ulcer craters near distal end of lesser curvature.

FIG. 2.—After partial gastrectomy (Polya) six months later.

CRATERS
SMALL DIAGRAM OF STOMACH IN SECTION
SHOWS (1) DILATATION OF STOMACH.
(2) SITUATION OF ULCERS ON LESSER
CURVATURE. (3) MASS OF INFLAMED
GLANDS ADJACENT TO ULCERATION.
(4) LINE OF EXCISION INDICATED BY---
'P' = PYLORUS
P

FIG. 3.—Resected portion of stomach.

J. R. CRUMBIE AND J. STEPHENS: DIAPHRAGMATIC HERNIA



Showing herniation of small intestine and caecum into right pleural cavity, displacement of heart to left, and abdominal cavity almost entirely occupied by large liver and stomach.

UNIV. OF MICH.

FIG. 1.—Before treatment.

FIG. 2.—Four weeks after sympathectomy.

FIG. 3.—Six weeks after sympathectomy.

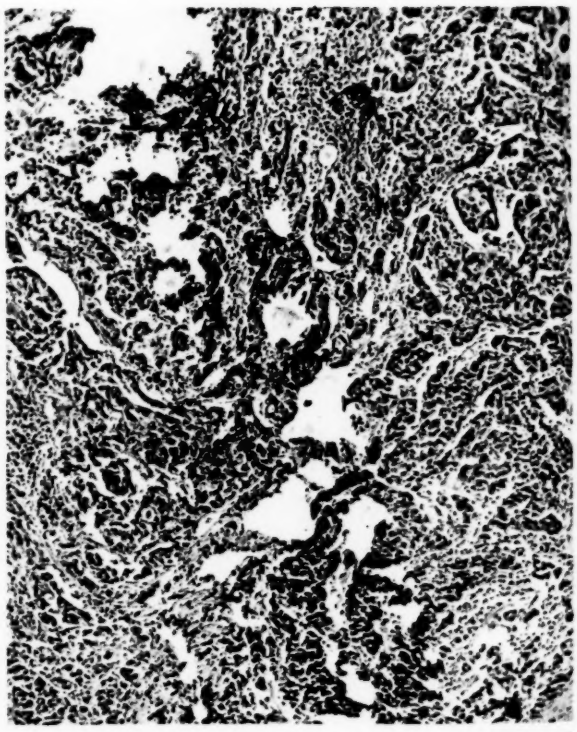


FIG. 4.—Microscopical section of edge of ulcer, showing appearance of squamous carcinoma.

British Medical Journal

SATURDAY, JULY 1st, 1933

OXYGEN THERAPY

As a general rule useful additions to our therapeutic knowledge are taken up quickly by the profession, but it is open to doubt whether oxygen is employed as much as it should be. During the war continuous administration of oxygen was widely practised in the treatment of pulmonary oedema from poison gases. The experience then obtained of the great value of oxygen in cases of gas poisoning encouraged its use in civil practice, and its importance as a therapeutic agent became more widely recognized during the ten years between the close of the war and the discussion held in the Section of Therapeutics and Pharmacology at the Annual Meeting of the British Medical Association in Edinburgh. Since 1918 there have been published a large number of clinical and experimental studies, recently summarized by Boothby.[1] The theoretical basis of arterial anoxaemia and its effects on the body have been expounded by Haldane and other workers,[2] and the indications for the use of oxygen in disease, with the evidence of its beneficial action, have been laid down by Stadie,[3] Meakins and Davies,[4] and many other English and American observers. It has been shown that anoxaemia is insidious in its onset and can exist without cyanosis. Indeed, when cyanosis first appears in the anoxaemia of lung disease the arterial blood is already seriously lacking in oxygen. Anoxaemia must be treated early, for if it goes on too long irreparable damage may be done to the respiratory centre and other parts of the central nervous system, on which falls the brunt of oxygen shortage. The causes of insufficient oxygenation of blood in the lungs may be put briefly under two headings: first, when enough oxygen fails to reach the alveoli ; and, secondly, when there is interference with the passage of the gas to the blood. Inadequate ventilation may be either local, as in areas of collapse, or general, as in shallow breathing. Pulmonary oedema or other alveolar exudate is considered to cause delay in the passage of oxygen, so that venous blood passes through the pulmonary capillaries without receiving enough oxygen to saturate it. This makes a sort of venous short circuit. In pneumonia both these factors may be operative. This disease and pulmonary oedema constitute the commonest indications for oxygen therapy. They occur frequently after major surgical operations, and it is in this group of cases that oxygen is of greatest value, because the virulence of the infecting organisms is commonly less than in cases occurring spontaneously in healthy people: the anoxaemia, therefore, assumes a greater relative importance. In lobar pneumonia there are so many complex factors influencing the mortality that the exact part played by oxygen is difficult to assess ; the effect of anoxaemia is mingled with that of the toxaemia.[5] In these circumstances an immediate and dramatic result of oxygen therapy is seen only occasionally: however, it needs but a few trials to convince any unprejudiced observer of the beneficial effect on the circulation and on the nervous system.

Why is it, then, that oxygen is not more widely used in practice? It may be that the significance of acute cyanosis is not generally recognized because chronic cyanosis is common and harmless in conditions such as emphysema and congenital heart disease, in which a compensatory increase of haemoglobin occurs. There can be little doubt that the extra attention needed for continuous oxygen administration, combined with the difficulty of obtaining the oxygen and other necessaries, is in some instances enough to prevent its use. Perhaps it is not sufficiently recognized that the good obtained from oxygen is not proportional to the amount given. The oxygen chamber or tent is by far the most agreeable and effective method, but this for the present is employed only in institutions, at least in this country. What complicates this method is the necessity for keeping the carbon dioxide at a proper level and also for regulating the temperature. The administration of carbon dioxide as well as of oxygen is very beneficial in carbon monoxide poisoning, but has not yet been proved to be of value in the majority of cases of pneumonia.

The simplest and cheapest way of giving oxygen is by the nasal catheter ; this has been shown to have a definite effect on the oxygen content of the arterial blood, even when quite small quantities of oxygen are given.[6] At its simplest it consists merely of a fine rubber tube inserted three inches into the nostril, held to the cheek by plaster and connected to an oxygen cylinder. A reducing valve is desirable ; and other refinements include a blunt-ended rubber tube with a hole lateral instead of terminal and smeared with cocaine ointment. To warm the gas and also to provide a visible flow, it can be passed through warm water. A glass jam jar capped with strong sheet rubber, pierced to receive two pieces of glass tubing, will outlast an expensive Woulfe's bottle. The flow of oxygen should be as fast as can be comfortably borne. Once the oxygen is flowing no attention is needed beyond a cautious turn of the valve to maintain the flow and the occasional detachment of the tube from the water flask to allow of the removal of condensed moisture. The catheter may be left in position for days. The cost of the oxygen, given continuously from small cylinders—the most expensive way—need not be more than 10s. a day.

[1] Boothby, W. M.: *Journ. Amer. Med. Assoc.*, December 10th, 1932.
[2] Haldane, J. S.: *Respiration*, Yale University Press, 1922.
[3] Stadie, W. C.: *Journ. Exp. Med.*, 1919, xxx, 215.
[4] Meakins, J. C., and Davies, H. W.: *Respiratory Functions in Disease*, London, Oliver and Boyd, 1925.
[5] Potts, W. H.: *Amer. Journ. Med. Sci.*, November, 1932, xxxiv, 616.
[6] Hilton, R.: *British Medical Journal*, March 17th, 1928.

SCARLET FEVER IN ENGLAND AND WALES

Miss Hilda M. Woods of the London School of Hygiene and Tropical Medicine has recently made a detailed statistical study of scarlet fever in England and Wales since 1900, under the headings of the trend of mortality and possible factors influencing this trend, changes in the age and sex distribution of mortality, morbidity, seasonal incidence, and case fatality. As the Medical Research Council points out in the preface to her report,[1] Miss Woods has had an advantage over statisticians of an earlier generation in that she has been able to study not only mortality but prevalence. In striking contrast with what happened in the second half of the last century the deaths from scarlet fever in England and Wales have shown such a remarkable diminution, due to lessened severity of the disease since 1900, as to suggest that the lowest death rate has been reached. The past history of the disease, however, should serve as a warning against excessive optimism in this respect, for variation in intensity from extreme gravity in the last years of the eighteenth century to a mild type of the beginning of the nineteenth century was followed by a severe type in the 'fifties. A study of the mortality figures for London, Liverpool, Manchester, and Birmingham reveals that the change in the trend of mortality from scarlet fever has not been uniform, but has shown more or less wide variations. In the pre-war period, for example, the greatest improvement in mortality occurred in Liverpool, whereas since the war the greatest decline has occurred in Birmingham. Contrary to what was first maintained by sanitary authorities Miss Woods found no evidence that hospital isolation has been effective in reducing the prevalence or mortality of scarlet fever. This conclusion bears out that of the Committee of Medical Officers of the Ministry of Health,[2] who reported in 1927 that "the incidence of the disease in the country generally appears to show no marked reduction as the result of hospital isolation, or indeed of any other measure of public control."

As regards the possible factors influencing the spread of scarlet fever, the prevalence of vermin, poor social conditions, and low rainfall have among others been incriminated. While it is true that in London scarlet fever was more prevalent in the poorer and overcrowded areas, in Birmingham the greatest incidence was among the better-class artisan dwellers, and in Glasgow the attack rate declined as crowding increased. In London a definite relation was shown by Longstaff in 1880 and Brownlee in 1923 to exist between wet years and low prevalence of scarlet fever, but this association did not exist in Liverpool, Manchester, or Birmingham. As regards age distribution it was found that while the absolute mortality for scarlet fever had fallen at every age, the relative mortality in the later years of life had increased. A similar shifting of the mortality in scarlet fever from the lower to the higher ages was found by Pope in Providence, U.S.A., in 1926. Although the mortality of scarlet fever has declined much in the course of the last thirty years, there is no evidence that its prevalence has diminished to any extent, the attack rate in 1911 being 2.9 per thousand and 2.76 in 1930. A study of the geographical distribution of the disease shows a high incidence in London and Essex, while in Middlesex, Bedfordshire, Wiltshire, and Denbigh the attack rates exceed 2,500 per million population. On the other hand, after the epidemics of 1920–1, there has been a marked fall in the attack rate in Wales, where in 1930 it was 2.87 as compared with 4.35 per 1,000 in 1920. In London (1930–1) and in Manchester (1896–1929) the maximum attack rate was at the age of 5 years—the age of compulsory school attendance. A study of the fatality rates at the Eastern Hospital from 1895 to 1914 showed that the greatest risk of death occurred during the first twelve months of life, though the chance of an attack was least among infants.

While the possibility of a reversion to a more dangerous type of scarlet fever in this country cannot be excluded, there seem to be ample reasons for believing that at least no sudden change is at all likely to occur. "Practical experience and statistical analysis appear to point to the same conclusion—namely, that the problem of scarlet fever now is an essentially different one from that of even a generation ago."

[1] Medical Research Council. Special Report Series No. 180. H.M. Stationery Office. (1s. 3d. net.)

[2] Some Administrative Aspects of Scarlet Fever. Ministry of Health Reports, No. 35.

CLINICAL SIGNIFICANCE OF RETICULOCYTES

In a recent paper Tsonos[1] estimates the content of reticulocytes in normal blood as up to 5 per 1,000 red cells (25,000 per c.mm.). In most anaemias, infections, and intoxications these cells increase in number, whilst in cachectic conditions—severe chlorosis and aplastic anaemia—they occur in small numbers only or are entirely absent. Iron and arsenic medication may lead to a considerable reticulocytic reaction. The usual view taken is that the appearance of these cells in the circulation is an index of the increased function of the bone marrow, and, as such, important in the prognosis of anaemias. The author, struck by the fact that children and infants of the same age varied in their tendency to anaemia associated with infections or nutritional factors, sought to correlate this with the reticulocytic response, using brilliant cresyl-blue in the moist chamber. In eleven cases of so-called constitutional anaemia of infants without infection or nutritional disorders in which the haemoglobin content was between 50 and 60 per cent., and the red cell count between 3 and 4½ millions, he found five cases with reticulocytes up to 8 per 1,000, four up to 9 per 1,000, and two up to between 10 and 19 per 1,000. These differences could not be correlated with the clinical condition or the haemoglobin content. Treatment with iron, copper, arsenic, and, on two occasions, liver, led in ten cases to marked improvement in the blood picture, but in three cases only was there an initial rise in reticulocytes, which later regressed, and all of these cases had originally a count higher than normal: those with original

[1] *Klin. Woch.*, April 8th, 1933.

normal reticulocyte count remained unchanged, as did also a therapeutically intractable case. Examination of fifteen children, aged from 2 months to 12 years, with various infections but no anaemia, showed only three cases of increased reticulocytosis, these all being severely ill. In fifteen cases of infection with mild anaemia five showed " high-normal " values and six values between 10 and 19 reticulocytes per 1,000 R.B.C. ; and in seventeen cases with severe anaemia five were " high-normal," three between 10 and 19 per 1,000, and three between 20 and 30 per 1,000. Thus again no constant relation between degree of anaemia or severity of infection could be demonstrated. During convalescence seven children with 10 to 20 reticulocytes per 1,000 R.B.C. showed a gradual return to a normal count. Treatment with metals or liver, either in the later stages of the infection or during delayed convalescence, showed in five mild cases with a reticulocyte count between 5 and 18 per 1,000 a return to normal count without any initial rise in reticulocytes. Of seven severe cases which were followed for a considerable time there was in four cases a rise in reticulocytes up to 30 per 1,000 and in one case up to 60 per 1,000, these high values returning to normal slowly. These observations are interpreted by the author as showing that reticulocytic formation is a constitutional reaction more easily evoked in some individuals than others, and that there is a certain but not constant relation between the severity of the anaemia and the reticulocyte reaction. Very real importance is attached to the observation that improvement may occur with or without an initial rise in reticulocytes. In further support of this he cites two cases of mild and two of more severe anaemia in which recovery took place after iron medication without any change in the reticulocyte count and four severe and two mild cases in which, in spite of very marked reticulocytosis, recovery did not occur. A theory of the significance of reticulocytes in the blood is put forward which does not attribute their increase to stimulation of blood regeneration, but rather to stimuli which, acting on the bone marrow, disturb the normal inhibition of their too rapid release. Thus the author considers that causes which lead to anaemia may also lead to increased blood reticulocytes by acting in the above way. Reticulocytic reaction to certain drugs, it is suggested, may be due not to regeneration, but to toxic action on an already unstable mechanism.

THE CONDITION OF THE PROFESSION

The whole medical profession, in the English-speaking world at least, always listens with respect and admiration to anything Dr. Harvey Cushing has to say. He has written an article entitled " Medicine at the Crossroads," which appeared in the *Journal of the American Medical Association* for May 20th last. In it he contemplates the medical profession as a patient who is supposed to be seriously ill and is menaced by a multitude of advisers. In a pleasantly cynical manner he attempts to adjudicate between, or to reconcile, a variety of diagnoses, and more than suggests that a period of quietude, even though it involves some endurance of accustomed ills, is more desirable than any application of drastic remedies, either self-administered or state-imposed. Such an opinion, coming from such a quarter, deserves, and will no doubt receive, careful consideration, both from the patient and from the rest of the consulting physicians and surgeons concerned with the case. It is scarcely to be supposed, however, that any of the parties involved will lightly acquiesce in a policy of masterly inactivity. It is probable that at least some minor adjustments of training and of environment will be adjudged to be necessary. Dr. Cushing's article is a delight to read, though perhaps a little long-drawn-out. Some few among its many wise dicta relating to questions of the day may be quoted here:

" Pressure is being brought to bear to have all bedside teaching permeated with emphasis laid on prevention, as though this were something novel. It would be a slur on the student's intelligence for a surgeon, let us say, to point out . . . that he wears rubber gloves to ' prevent ' infecting the patient, gives the anaesthetic to ' prevent ' pain, removes the appendix to ' prevent ' peritonitis, and so on *ad infinitum*."

" In actual fact, our schools no longer pretend that the degree of M.D. which students attain after four years prepares them for practice ; we merely bring them to the point at which they must on their own initiative scramble for a hospital appointment where they hope to acquire what the school has neglected to give them—the training necessary to secure a licence to practice."

" There has been much lamentation about the disappearance of the family doctor, but . . . he's not often heard from, and I am far from believing he's a vanishing species, in spite of our scholastic neglect of him in a system which, by over-emphasis on research and prevention, rather than on diagnosis and treatment, gives him while an undergraduate a sense of inferiority."

" What this puzzled world needs perhaps is more study of the past, fewer commissions and surveys of the present, and a greater number of philosophically minded, self-supporting, and law-abiding persons who can see all round their particular problem and independently devote themselves to it as do most doctors."

Yet though these passages contain important correctives to several current judgements, they are but random samples from a provocative presentation of medicine to-day as a clinical problem, which should be read in its entirety.

MEDICAL RESEARCH IN CALCUTTA

The annual report of the Calcutta School of Tropical Medicine[1] for 1932 is remarkable for the amount, the variety, and the quality of the research work reported. It is published in three volumes, one of which contains the annual reports of the directors and professors in charge of various departments, while the other two contain reprints of fifty-six published papers, and it is mentioned that fourteen additional papers were published from the school during the year. This large output is explained by the fact that the school is making an earnest attempt to grapple with the bewildering variety of diseases that afflict the Indian sub-continent. The director, Lieut.-Colonel H. W. Acton, mentions first the gratifying fact that at last the problem of the transmission of kala-azar has been solved, and that the disease has been proved to be transmitted by the sandfly *Phlebotomus argentipes*. A systematic examination has been made of a series of organic pentavalent antimony compounds in relation to their efficacy in the treatment of kala-azar, and of these stibosan has

[1] Calcutta: Bengal Government Press. 1933. (Gratis.)

been found to be the most effective. Several papers deal with the action of plasmoquine and atebrin in malaria, and the results recorded indicate the great importance of these compounds. The economic value of intelligent research is illustrated by the following facts mentioned in the director's report. A total dosage of 0.32 gram of plasmoquine had been recommended for the sterilization of gametocytes, but controlled investigation showed that 0.04 gram was equally effective. This change in dosage saved about £5,000 in a large-scale investigation of the action of plasmoquine in malaria. Hexyl-resorcinol was found to be unsuitable for the treatment of ankylostomiasis, because in comparison with other remedies it was relatively expensive and ineffective. Lieut.-Colonel Chopra, continuing his investigations on drug addiction in India, has found that during the last decade chloral hydrate has become widely used in the Punjab, apparently as a cheap substitute for alcohol in producing stupor. The points mentioned above are only a sample of the large mass of pharmacological, pathological, and bacteriological work that was produced during last year by the Calcutta School of Tropical Medicine. The director and his associates are to be congratulated on the manner in which they are advancing knowledge about the prevention and treatment of tropical diseases.

THE NATIONAL PHYSICAL LABORATORY

The yearly chronicle of work done at the National Physical Laboratory[1] covers a vast and various field. Metallurgy, aerodynamics, electrotechnics, and general physics in innumerable ramifications all come within its province. Only at a few points does it touch on medicine. The work upon the precise measurement of *x*-ray dosage and on the perfecting of protective measures is being continued. Radium to the total quantity of nearly 6½ grams was submitted to the laboratory for testing during 1932, and several hundreds of containers have been tested for leakage and repaired. At the request of the King's Fund twenty tubes belonging to the four-gram bomb were examined prior to being reissued in units of one gram to each of four London hospitals. The mounting of the one-gram units was also carried out at the laboratory. The laboratory undertakes the general arrangements for the storage and distribution of national radium, and consignments of radium have been distributed during the year to national radium centres and to three of the new regional centres. Certain of the national radium containers which were originally tested over two years ago have been retested during the past year in order to discover whether the radium supplied is free from mesothorium and its disintegration products. A number of radium containers have been inadvertently damaged by fire during the year, and the laboratory has been able to render effective assistance on occasion in recovering containers from hospital incinerators. At the request of the Otological Section of the Royal Society of Medicine, the laboratory has been carrying out experiments on the rates of decay of tuning-forks such as are used in otological testing. A simple instrumental test was devised in conditions which simulated those commonly adopted by otologists in tests of deafness, the rate of decay of a fork held in the hand being determined both in free air and with the base of the fork pressed against an artificial substitute for the mastoid bone of the skull. Attention was paid to the type of finger-grip employed, and to the effect of lack of balance of the prongs on the rate of decay. This latter condition not only gives rise to a more rapid decay than when the fork is in balance, but appears to accentuate the usual tendency of forks to decay at a greater rate when the amplitude is large than when it is small. Another piece of work has been undertaken at the request of the Dental Disease Committee of the Medical Research Council—namely, the *x*-ray study of tooth structure, in particular the difference between tooth enamel and dentine as revealed by *x* rays. The crystalline constituents of both these substances are nearly identical, but the arrangement of the crystallites differs greatly. In dentine the crystals are oriented at random, whereas in enamel there is a markedly preferred orientation, the nature of which has been determined. There is also a pronounced difference between enamel and dentine in their absorbing power for *x* rays, dentine being much more transparent. This throws some light on the amount of material other than crystalline in the different parts of the tooth. The enamel contains a higher percentage of crystalline material. Arrangements have been made for a continuation of the work, which has been extended to the study of enamel decay, and certain differences already found between normal enamel and enamel subject to decay are being further investigated. The annual inspection of the Laboratory by members of the general board took place on Tuesday of this week. Visitors were received by Sir F. Gowland Hopkins, President of the Royal Society, chairman of the board, Lord Rayleigh, chairman of the executive committee, and Sir Joseph Petavel, the director.

[1] Report for the Year 1932. H.M. Stationery Office. (14s. net.)

ANIMAL PATIENTS

Dogs fitted with prosthetic appliances are not uncommon in these days when the streets take their toll of dogs as well as of human beings, but it is unusual to hear of a dog with an artificial eye, or with a denture, including gold bridge work. Sir Frederick Hobday, who delivered the eighth Macalister memorial lecture at the National Temperance Hospital on June 22nd, described these and many other curious examples of veterinary surgery and orthopaedics. The use of *x* rays is now general in veterinary practice, chiefly for the detection of foreign bodies which have been swallowed. Sir Frederick Hobday rather suggested that dogs specialize in the things they swallow. One animal, for example, has a fancy for screws, a small collection of which has been removed from its stomach. Other dogs regard their interior as a money-box, and about sixpence in coppers, which should have been the property of the confectioner to whom the dog was sent to buy buns, was discovered in one canine stomach. A dog was recently brought to the Royal Veterinary College having swallowed a diamond stud of the value of fifteen guineas ; the stud was retrieved. Among horses there were formerly many cases of swallowed foreign bodies, but this is now rare, owing to the practice among careful owners of going over the corn-feed with a magnet for the removal of small pieces of metal. Sir Frederick Hobday reminded his audience of the large amount of professional preparation which nowadays goes to the making of a veterinary surgeon. The student must

matriculate before beginning professional studies, following which a minimum period of five years is spent before the diploma of the Royal College of Veterinary Surgeons is granted; even so, a large proportion of students extend their studies for a further six months to take a university degree. After qualification the diplomate may specialize in public health, in which case he spends a further year in obtaining a post-graduate diploma, or he may decide to enter for tropical veterinary medicine, or to specialize as a consultant in a particular field, all of which entails further preparation. The veterinary course is open to women and men alike, and at present there are twenty-nine qualified women veterinary surgeons, and a good many women students in the different colleges. The Royal Veterinary College has at the moment nearly seventy women students, some of whom have already done brilliantly in examinations. The prospects of the veterinary profession for women appear to be good. Women seem capable in an unusual degree of inspiring confidence in animals, and of converting their animal patients into friends. The girl seeking a career, if she had brains and loved animals, might be well advised, said Sir Frederick Hobday, to qualify in a veterinary course, and afterwards specialize in canine medicine.

THE 1,500th SUPPLEMENT

Our *Supplement* of this week is the fifteen hundredth ordinary number. The propriety of issuing a supplement had been under consideration for some time before the first number appeared on February 5th, 1903. In October, 1901, the Council adopted a recommendation to the effect that in view of the amount of official matter which had to be published in the *British Medical Journal* it was desirable to issue from time to time supplements containing such material. The recommendation was not immediately acted upon, because it was a time of transition, and it seemed well to wait until the new constitution was in full working order. At first the *Supplement* was issued at irregular intervals as matter accumulated, but since the beginning of 1905 it has appeared, with very few exceptions, every week. It varies in size according to the exigencies of the moment; on several occasions it has contained sixty-four pages, either when the Annual Report of Council was published or when there has been a special Representative Meeting. In addition, special issues have occasionally been published, such as the *Canadian Supplement* in connexion with the Winnipeg Annual Meeting in August, 1930, the *Colonial Medical Services Supplement* in July, 1931, and the Register of Bio-Physical Assistants on several occasions. In 1912, at the height of the Insurance Act upheaval, the two volumes contained 1,484 pages. During the war the bulk was very much diminished, but it gradually grew again as the activities of the Association expanded in many directions, though the number of pages has never approached that of twenty years ago. The object with which the *Supplement* was established was that members should be able to follow every phase of the British Medical Association's work, and to appreciate its variety and extent. In this way it was believed that a larger proportion of members would be stimulated to interest themselves in the Association's efforts for the furtherance of reforms within, as well as without, the profession.

COMMITTEE ON SCOTTISH HEALTH SERVICES

The Secretary of State for Scotland has appointed a Committee "to review the existing health services of Scotland in the light of modern conditions and knowledge and to make recommendations on any changes in policy and organization that may be considered necessary for the promotion of efficiency and economy." The members of the committee are: Sir John Dove-Wilson, K.C., ex-President of Supreme Court of Natal (chairman), Mr. George Bonar, Dr. James L. Brownlie, Mr. Ian Carmichael, Professor E. P. Cathcart, M.D., F.R.S., Dr. Robert W. Craig, Provost David Fisher, Professor Alexander Gray, Sir Andrew Grierson, Dr. John Jardine, Dr. Alexander S. M. Macgregor, Lady (Leslie) Mackenzie, Mr. W. M. Marshall, Dr. Alexander Miles, Bailie Violet Roberton, Mr. J. M. Vallance, Mrs. A. M. Chalmers Watson, M.D., and Mr. Joseph Westwood. The secretary of the committee is Mr. Niven F. McNicoll of the Department of Health for Scotland, 121a, Princes Street, Edinburgh, to whom all communications should be addressed.

On March 18th we announced that arrangements had been completed, after nearly three years of consideration and postponement, for the establishment of the British Post-Graduate Medical School at Hammersmith. Work on the building has now been begun, and the foundation stone will be laid by Mr. Neville Chamberlain, Chancellor of the Exchequer, on July 17th.

The new buildings of King's College Hospital Medical School at Denmark Hill will be opened by H.R.H. Prince George on Tuesday, July 4th, at 3 p.m., when Admiral of the Fleet Earl Beatty, chairman of the committee of management, will preside.

The Buckston Browne Surgical Research Farm at Downe, Kent, will be formally opened by Sir Holburt Waring, President of the Royal College of Surgeons of England, on Wednesday, July 12th, at 5 p.m.

ORDER OF ST. JOHN OF JERUSALEM

The King has approved promotions in, and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem, as follows:

Knight of Justice.—Lord Dawson of Penn, G.C.V.O., K.C.B., K.C.M.G., M.D., P.R.C.P.

Knight of Grace.—Major-General J. T. Fotheringham, C.M.G., M.D. (Toronto), Colonel Sir Edward N. Thornton, K.B.E., M.R.C.S. (Pretoria).

Commander.—Lieut.-Colonel W. K. Clayton, C.M.G., M.D., H. W. Horan, M.B., S. McCormac, M.B., H. A. Beatty, M.D., Colonel L. Drum, C.B.E., M.D., Major-General Sir John W. D. Megaw, K.C.I.E., M.B., I.M.S., A. Dobson, M.R.C.S.

Officer.—J. Cairns, O.B.E., M.B., C. Armstrong, M.B., Major J. H. Dixon, M.D., Brevet Colonel J. Wallace, O.B.E., M.D., E. A. Braithwaite, M.D., Lieut.-Colonel O. A. Cannon, M.B., Colonel J. T. Clarke, C.B.E., *M.C.*, M.D., Lieut.-Colonel G. G. Corbet, M.D., A. J. Douglas, M.D., Ross Millar, M.D., G. D. Stanley, M.B., M.P., Lieut.-Colonel A. McPhee Warner, M.D., R. E. Wodehouse, O.B.E., M.D., R. A. Worthington, M.D., A. T. Macnamara, M.D., G. B. Horrocks, M.B., Captain F. H. R. Heath, M.R.C.S., S. L. Dawkins, M.B., Captain M. G. Louisson, M.B., F.R.C.P.

Serving Brother.—C. Gardiner-Hill, M.B., Lieut.-Colonel N. Maclaren, M.B., F.R.C.S., R.A.M.C.(T.A.), Colonel C. H. S. Redmond, T.D., M.B., A.M.S., Major M. MacEwan, D.F.C., T.D., M.B., F. L. Newton, M.B., W. T. Thomson, M.R.C.S., G. P. Huws, M.B., H. E. Thomas, M.R.C.S., A. B. Hudson, M.D., J. H. R. Bond, M.B., Lieut.-Colonel R. M. Gorssline, D.S.O., M.B., L. H. Leeson, M.D., Major S. R. Gibbs, *M.C.*, T.D., M.R.C.S., W. H. Vickery, F.R.C.S., Major T. Russell, O.B.E., L.R.C.P., A. S. Watson, M.B., R. J. L. Sladen, F.R.C.S.

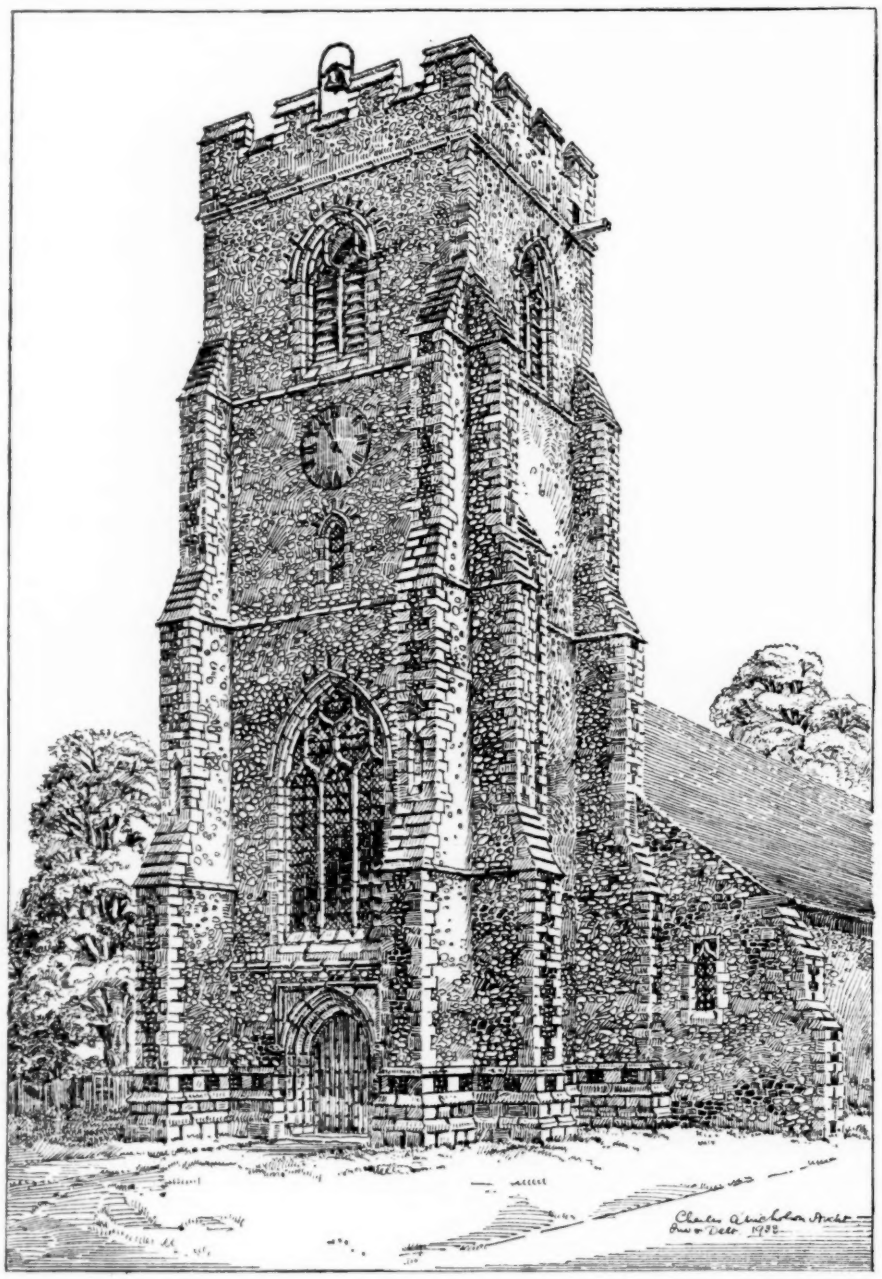
Serving Sister.—Mrs. Grace H. G. Dundas, F.R.C.S.I.

THE HARVEY MEMORIAL TOWER

BY

SIR JOHN ROSE BRADFORD, BT., M.D.

On Friday, July 7th, at 3.30 p.m., Lord Dawson of Penn, President of the Royal College of Physicians, will lay the foundation stone of the new tower of Hempstead Church, Essex, which is now in process of reconstruction. This tower will in future be known as the Harvey Tower, and will be a visible and worthy memorial to the memory of William Harvey.



Hempstead and its church are closely and peculiarly associated with William Harvey and the Harvey family. The church is beautiful and of very considerable historical interest as an example of the Early Gothic building of the Middle Ages, dating as it does from the fourteenth century; but to members of the medical profession, and indeed to all workers in biology, there is surely a most direct and moving appeal in thus associating the memory and the name of the great exponent of the experimental method with the reconstruction of a tower that will in future be known as the Harvey Tower.

The Harvey family had many distinguished members in various walks of life, and their mortal remains lie in the vault under the Harvey Chapel built by members of the family who were landowners in the vicinity, and here in 1657 William Harvey was interred, and his body remained undisturbed until 1883.

In 1882 the church tower, after developing cracks in its upper parts, fell suddenly during the night of Saturday, January 28th. The collapse was due in all probability to some weakness in the upper parts of the tower, since the excavations recently made in the course of the reconstruction have revealed that the original foundations are sound, notwithstanding their great age. The fall of the tower fifty years ago produced a result that it is to be hoped is not often to be seen, since the smallness and the comparative isolation of the parish of Hempstead were such that it was not possible to collect sufficient funds to repair the damage. It is difficult to describe adequately the scene of desolation in the churchyard, encumbered as it was with the accumulated debris of the fallen masonry and with the fallen great bells of the church, that most fortunately were not seriously damaged. All that could be done, in addition to some urgent temporary repairs, was to collect and stack the stones and flints with the hope of some day rebuilding the tower.

The Harvey vault, with lapse of time, also fell into disrepair, and in 1883 the College of Physicians felt that it was not fit that the remains of the immortal Harvey should be so little cared for, and they removed the leaden shell containing his body from the vault and placed it in a marble sarcophagus in the Harvey Chapel of the church, where it now rests. Thus Harvey's remains have been treated in a dignified manner worthy of the greatness of the man.

During the last few years a committee representative of the medical profession and of the parishioners of Hempstead has striven to raise funds to restore the tower as a memorial to Harvey, and has obtained altogether some £3,000 in cash and promises. This sum is insufficient to restore the tower to its full height, and the rebuilding of the ringing room and of the belfry will have to be postponed unless a further sum of £2,000 can be obtained. Nevertheless, the building of the tower up to the level of the ringing room floor will be a vast improvement on the existing conditions, and it is to be hoped that it will afford an inducement to others to make contributions to the fund, and so enable the committee to complete its work. Not only has the cost of the rebuilding

been much reduced owing to the fact that the great bulk of the masonry required has been provided through the care taken in the past to preserve the old stone and flints, thus avoiding largely the purchase of new stone; but in addition there will be the satisfaction that the restored tower will consist to a great extent of the old material.

The committee was fortunate in securing the services of Sir Charles Nicholson as architect, and his drawing of the restoration is exceptionally pleasing, and in complete harmony with the ancient church. In the course of the preparations for the laying of the foundation stone, not only have the old foundations been found in excellent condition, but in addition several interesting relics of a Norman church that stood on the same site have come to light, and have been examined by the Rev. T. B. Conyers Barker, the vicar of Hempstead, who describes "portions of Norman shafts with interlaced work, a cap which covered twin shafts, and two leopard heads inserted as labels over the doorway." Further, Mr. Conyers Barker mentions that six ornamental stones bearing heraldic shields will be replaced on each side of the doorway of the new tower and on the faces of the four buttresses. It is to be hoped that the occasion of the laying of the foundation stone will afford an opportunity for many to make donations and to enable the work to be completed.

THE CAMBRIDGE MEDICAL COURSE

AMENDED PROPOSALS

In the *Cambridge University Reporter* for June 17th (No. 2939) is published the amended report of the Syndicate on the Medical Courses and Examinations of the University. It will be remembered that in reviewing the proposals for a Medical Sciences Tripos at Cambridge we said: "Of the various proposals put forward exemption from the Second M.B. through the anatomy (modified for this purpose) and the physiology of the Natural Sciences Tripos would go far towards solving the main problem."[1] And this is, roughly, the conclusion arrived at by the Syndicate in its amended report.

The report states that the bulk of University opinion is against the introduction of a Medical Sciences Tripos, and that the Syndicate itself is of the opinion that it would be preferable if the necessary changes could be effected in the Natural Sciences Tripos. The Syndicate and the Natural Sciences Tripos Committee are now in agreement on the proposed changes, to which the Faculty Boards have given their general approval. If the Senate also gives its approval the introduction of a Medical Sciences Tripos will be unnecessary. The Syndicate remains unaltered in its conviction that the present duplication of courses and examinations for the Natural Sciences Tripos, Part I, and the Second M.B., Part II, must be abolished. The following proposals, whereby exemption of medical students from Parts II and III of the Second M.B. can be obtained through a modified Natural Sciences Tripos, have been formulated after consultation with the Natural Sciences Tripos Committee.

In the study of anatomy, under the existing scheme, the student spends his first two years memorizing the mass of topographical detail necessary for Part II of the Second M.B., and the last year in "getting up" the morphology and embryology required of him for Part I of the Natural Sciences Tripos. The Syndicate deprecates this artificial division, and holds that topographical anatomy and morphology and embryology should be taught together as one subject; and it advocates that the anatomy of the Natural Sciences Tripos, Part I, should consist of equal proportions of "scientific" (morphology and embryology) and topographical anatomy. Of the latter, less detailed knowledge will be required, and teaching will deal chiefly with the general architecture of the body, with more exact treatment of certain important areas such as the nervous system. The scope of physiology is to remain unaltered, but the Syndicate recommends that the chemical part of physiology be taught in the Department of Physiology, and that some of the biochemistry which is more directly related to the education of the medical student should be taught in the Department of Biochemistry. It is proposed that optional questions on pharmacology shall be included in the physiology papers of the Natural Sciences Tripos, but it is not intended that pharmacology should be a subject in Part I of the Tripos. The Syndicate recommends that the present course of pharmacology held in the Lent Term and Long Vacation should continue, and that the student should not proceed to the Third M.B. until he has attended this course (or an approved course elsewhere) and passed a *viva voce* examination at Cambridge. It is also suggested that opportunity should be given to the student to study pharmacology in conjunction with the physiology for the Natural Sciences Tripos, Part II, and that he should be allowed to substitute one or, when possible, two papers and a practical examination in pharmacology for one or two papers and the corresponding practical in physiology. Evidence from many resident and non-resident members of the University strengthens the Syndicate's opinion that general pathology and bacteriology should form a half-subject in Part I of the Natural Sciences Tripos. The Syndicate does not suggest, however, that candidates should be required to take pathology in the Tripos in order to qualify for the Final M.B., as pathology forms part of this examination. It is opposed to a student's studying pathology in his first year. Owing to the increasing importance of biochemistry in scientific research and medical practice it is recommended, with the concurrence of the Natural Sciences Tripos Committee, that biochemistry should be a half-subject in the Natural Sciences Tripos, Part I, and that medical students should be advised not to take it until their second year. To encourage those medical students who wish to offer chemistry as a subject in the Tripos, the Committee for the Natural Sciences Tripos has now agreed, at the request of the Faculty Board of Physics and Chemistry, to propose the introduction of two half-subjects in chemistry—inorganic and physical chemistry, and organic chemistry. Each half would include general chemistry, and the two halves together form the whole subject. The Syndicate has also proposed a half-subject in zoology adapted to the needs of the medical student in Part I of the Natural Sciences Tripos. The Natural Sciences Tripos Committee agrees that zoology might be divided into two sections, Zoology A and Zoology B, the former being a half-subject suitable for medical students and the two together making the whole subject. While it is admitted that psychology is becoming of increasing importance in medicine, the Syndicate does not regard this as a suitable subject for Part I of the Natural Sciences Tripos. It proposes, however, that the student should be allowed to study psychology in conjunction with the physiology of Part II of the Tripos.

GENERAL RECOMMENDATIONS

In order to proceed to the Final M.B. Examination via Part I of the Natural Sciences Tripos, the student who gets honours in the Tripos must have satisfied the examiners in anatomy, dissected the whole body, and have passed a series of practical tests to ensure that the dissection has been adequately carried out, and must also have satisfied the examiners in physiology. It may be noted that pharmacology and pathology are not compulsory Tripos subjects for such a student. The Syndicate allocates thirty hours a week to lectures and laboratory work in anatomy, physiology, and one other whole subject, or two half-subjects (twelve, nine, and nine hours, respectively); and this, it considers, will enable a "good" student who has passed the whole of his First M.B. before coming into residence to take the Natural Sciences Tripos, Part I, in three subjects at the end of his second year. The "average" student and the student who has done

[1] *British Medical Journal*, November 19th, 1932 (p. 936).

no science before coming up to Cambridge should spend three years over Part I of the Tripos.

It is therefore proposed that Parts II and III of the Second M.B. be abolished, that Part I (organic chemistry) be transferred to and become Part IV of the First M.B., and that qualifying examinations in anatomy and physiology be provided for those who have not offered these subjects in the Tripos, or who have not reached the standard required, although obtaining honours. This qualifying examination could also be taken by students not intending to read for honours, but who would proceed to the Ordinary B.A. degree: these students, however, will have to "*rely on some medical qualification other than the Cambridge M.B. Degree.*" (Italics ours.) The Syndicate wishes to make the degrees of M.B., B.Chir. "conditional on obtaining honours, or on reaching later an honours standard in a Tripos." It is "of the opinion that the Cambridge M.B. Degree should normally imply a high standard in the preclinical training in science, which Cambridge is peculiarly qualified to give, as well as a high standard in the final examination in clinical subjects." The Syndicate has also made provision for students who may wish to take up medicine after obtaining an honours degree in some Tripos other than the Natural Sciences. Such a student who has gained honours in any part of any Tripos would be allowed to proceed to the Final M.B. Examination after passing the first M.B. and the qualifying examinations in anatomy and physiology, after taking an approved course in pharmacology and passing the *viva voce* in this subject in Cambridge, and after having completed the dissection of the body and passed the necessary practical tests.

The Syndicate is strongly of the opinion that no clinical work should be done at Addenbrooke's Hospital during the three years' residence at Cambridge, which should be devoted exclusively to preclinical subjects; but it is anxious that the teaching of applied anatomy, biochemistry, pharmacology, physiology, and pathology should be developed in co-operation with the physicians and surgeons on the staff of the hospital. To ensure adequate clinical work it is proposed that a student should not be allowed to take both parts of the Final M.B. until three years, and one part until two years, after passing the last examination which qualifies him for the final examination. Modifications of the conditions for obtaining the M.D. are also put forward, as well as other recommendations.

England and Wales

International Congress of Orthopaedic Surgery

As already announced in these columns the second Congress of the International Society of Orthopaedic Surgery will be held in London from July 19th to 22nd; the president will be Professor Nové-Josserand of Lyons, and the secretary Mr. Harry Platt, surgeon in charge of the orthopaedic department of Ancoats Hospital, Manchester. The meetings will take place at the Royal Society of Medicine. After a general meeting on the afternoon of the first day, the president will hold an evening reception at the Langham Hotel. Proceedings will open on July 20th with an address by Professor Nové-Josserand on the general position of orthopaedics. This will be followed by a discussion on the general mechanism of joint movements, the first speakers being Drs. von Bayer of Germany, Delitala of Italy, and Scherb of Switzerland. In the evening there will be a reception at the Royal College of Surgeons. Tuberculous coxitis will be the subject for debate on the morning of July 21st, the first four contributors being Drs. Erlacher of Austria, Maffei of Belgium, Henderson of the United States, and Sorrel of France. In the evening there will be a dinner at the Dorchester Hotel. The morning of the last day will be devoted to short papers, the subjects including arthroplasty of the hip; hypertrophic osteopathies; a film illustrating the treatment of fractures of the spinal column; the pathodynamics of wrist and finger contractures; and gland biopsy as a means of diagnosing tuberculous osteoarthritis of the limbs. The afternoon will be spent in a visit to Alton. In connexion with this congress, tours are being arranged to Shakespeare's country, the West of England, and Scotland. Participation in the congress is limited to members of the International Society.

Epsom College

Lord Burnham, the president, was in the chair at the eightieth annual general meeting of the governors of Epsom College, held on June 23rd at the office, 49, Bedford Square, W.C. In announcing the result of the election of pensioners and foundation scholars, the president commented on the pains taken by the Conjoint Committee to elect as foundationers the most deserving boys who at the same time would appear to be the most capable of utilizing their great opportunity, and stated that the boys' fathers had practised in various parts of Great Britain: one in Glasgow, three in Lancashire, two in Yorkshire, one in Ireland, one in Sussex, one in Cheshire, one in Devonshire, and one was in the Indian Medical Service. The names of the successful candidates were:

Foundation Scholarships: Edward H. Couper, Hugh W. Macintyre, Anthony G. Quinlan, Robert S. Sunderland, Robert D. West, William J. Dunlop, William M. Pinder, George L. H. Steede, Peter B. Verver, Brian H. Harriss, Michael R. Tosswill.

Pensionerships: Mrs. Mary J. Lindsay, Dr. Herbert Blott.

Dr. R. Prosser White was elected a vice-president of the College in appreciation of his generosity in founding prizes for the study of French and German or Spanish. In presenting the annual report of the council the president asked the governors to join him in an expression of pleasure on learning that the honour of knighthood would shortly be conferred upon Dr. Raymond Crawfurd, the chairman of the council. Dr. Crawfurd then gave the governors an interesting summary of the works carried out at the College in the course of the past ten years, during which period the council had endeavoured to do what normally would have taken 100 years. The report was unanimously approved.

Mental Disease Research in Birmingham

The Joint Board of Research for Mental Disease of the City and University of Birmingham has issued its annual report for 1932–3, in which the chairman, Sir Gilbert Barling, calls attention to the increasing difficulties brought about by financial restriction. Little progress has been possible as regards the proposed central laboratories for the Midland districts and the provision of special research laboratories in connexion with the building of the new medical school of the University. An outstanding feature of the programme of work during the year under review was the continuance of the investigation of nasal sinus pathology with special reference to mental disease. The director of the research laboratories, Dr. F. A. Pickworth, contributed to the July, 1932, issue of the *Journal of Mental Science* a detailed description of the present position in this respect, including a collection of data from the existing literature and an account of original work.[1] In the *Journal of Laryngology and Otology* (1932, xlvii, p. 797) an article by him appeared on the influence of septic infection upon the cerebral blood supply, the hypothesis being put forward that the most important cause of dysfunction of the brain was to be found in the disturbance of the circulation following sepsis of the sphenoidal sinus. A necropsy on a case of post-lethargic encephalitis

[1] See *British Medical Journal*, December 31st, 1932, p. 1201.

disclosed irregularities in the sphenoids, with indications of old sepsis. The left antrum contained pus, and the mucosa was thickened. Brain sections also showed changes of considerable pathological interest. It may be recalled that there was a series of 100 specimens supplied by the Board to illustrate nasal sinus pathology in the museum at the Centenary Meeting last year of the British Medical Association. Another line of investigation continued by the Board involved the examination of thick sections of the brain for the quantitative amount of nerve cells present and the condition of the vascular supply. Pathological changes were detected in the smallest brain arteries in cases of mental disorder. In many instances the total loss of cells of the cortex was very remarkable, and could conceivably be correlated with dementia. By this intensive study also many infarcts were brought to light which would otherwise have escaped notice. The blood supply of the cortex was found to show great variation in local areas, which contrasted sharply with the even distribution in normal animal brains used as controls. A large number of catheter specimens of urine were examined for organisms on the supposition that saprophytic streptococci might have access to the brain ; the number of positive findings was significant.

London Public Health Services

Most of the matters which are dealt with in the second volume of the annual report of the London County Council, 1931 (Public Health),[1] have been already recorded in these columns as they have arisen from time to time in the proceedings of the Council, but it is useful to have some complete picture of the great work for which the Council is responsible. Apart from mental institutions, the Council has under its management seventy-five hospitals, with 41,000 beds, and with a staff, including the ambulance service, of nearly 19,000. It is mentioned that during the year under review four conferences took place between representatives of the Council and representatives of the London Voluntary Hospitals Committee, and that the subjects discussed were not limited to those strictly defined under the Local Government Act, 1929, but were extended to include other matters of mutual interest, such as facilities for medical education. The achievements of the Council in regard to housing are recorded in the same publication. Up to the end of 1931 the Council has completed as part of its post-war programme 46,724 houses and flats, and the total estimated population of these " Council houses " is over a quarter of a million. The housing programme for the quinquennium 1931–5 was an ambitious one, contemplating the provision of 34,670 houses and flats, and the initiation of schemes for dealing with clearance areas affecting a population of 30,000 ; but it has been interfered with by the financial situation. The development of the estates known as Becontree and St. Helier (Morden) is being continued, but at diminished rates of production, and it is proposed to proceed steadily with the Council's settled programme of slum clearance and rehousing.

Livingstone College

Commemoration Day at Livingstone College, Leyton, E., was held on June 12th, when the Archbishop of York presided over a large gathering. In his sympathetic address the Archbishop said that even a short course at Livingstone College was of supreme value to all missionaries. Sometimes the missionary had to take a responsibility or to make decisions that he would rather leave to the qualified medical missionary, but at least he would know through his training at the College whether he could deal with the case or whether he must call in the doctor. Those who had been through even one month's course would have some knowledge of the way in which the missionary could deal with the misery that surrounded him in his work. If the societies would supply thirty students a year for the full course it would be possible to keep the college running without further demands on the beneficence of the general public or on any sort of missionary funds. The principal, Dr. Tom Jays, said that Livingstone College had been passing through difficult times since 1931, with lowered fees and a great shortage of students. The treasurer, Mr. R. L. Barclay, said that during the past year expenses exceeded receipts by £346, and this in spite of the utmost economy in management on the part of the Principal and Mrs. Jays, to whom a great debt of gratitude was due for their ability and self-sacrifice.

[1] *London County Council Annual Report, 1931.* Vol. ii. P. S. King and Son. (1s.)

CORRESPONDENCE

Unqualified Practice and the Medical Curriculum

SIR,—Sir Ernest Graham-Little, in his letter in the *Journal* of June 24th, argues that the Medical Acts have failed to protect, commercially and politically, the registered medical practitioner, and that therefore it is not worth while exacting the severe tests now required before admission to the *Register* ; further, that the money now spent is not well spent, because it does not produce corresponding privileges. He then states that teachers and students are acutely dissatisfied with the present required course, and supports this statement by quoting a resolution passed by a medical society belonging to one of the teaching hospitals, by another resolution passed by a student society which had had the matter argued before it (wisely or unwisely?) by a member of the staff of the school, and by a reference to the appointment of a committee in London to discuss the curriculum. (In parenthesis I remark that Sir Ernest appears to be imperfectly informed regarding the primary reason for the appointment of this committee.)

To meet the political disadvantages referred to, and the dissatisfaction thus illustrated, Sir Ernest propounds a scheme of a four-years' course which should entitle to registration under the Medical Acts ; he does not suggest any reform of these Acts. It will not be disputed by anyone that periodic inquiry into the relations between what is taught and what is needed for service to the public is both wise and necessary, but it is a new proposition that the length and requirements of the medical course should be settled on the basis of the commercial value of registration. A reform of the medical course may be overdue, and the particular point which deserves attention is as to whether the courses as at present given have value in reference to practice ; there is a suspicion in many minds that the enthusiasm of teachers has loaded the course with matter that has no such value, and also that certain traditions, now outworn, are still retained.

Sir Ernest Graham-Little appears to me to confuse two affairs which have little or no relation to each other, the one being the protection given to the public and the profession by the Medical Acts, the other the adaptation of teaching to the needs of practice. The defects of the first cannot be remedied by altering the curriculum, and the discussion of the latter should not be clouded by political considerations.—I am, etc.,

London, W., June 24th. K. W. MONSARRAT.

The B.M.A. Nutrition Committee

SIR,—There was a phrase, complimentary to the British Medical Association, in the *Week-End Review* of May 27th, which some of your readers may well find disquieting. Referring to the recent correspondence in that periodical on the need for a dispassionate inquiry into healthy subsistence standards for the people of this country, and to the appointment to this end of "a strong committee by the British Medical Association," the editor wrote: "No doubt the B.M.A. committee will produce an exhaustive study which will supersede previous work within its field." How much time, I wonder, would a committee need for preparing such an "exhaustive" study? And, supplementary to that question, What, however perfect academically, would be the value of such a study to our unemployed *here and now?*

You yourself, in commenting on the need for an inquiry, remarked that "malnutrition may be more widespread than some people believe," and that "even the most confirmed optimists would not like to assert that the winter of 1933–4 will see any marked amelioration of conditions in the depressed areas of this country." May I suggest, then, that if the committee is as much concerned with aiding the public as with the scholastic aspects of its inquiry, it would do well to issue an interim *strictly practical* report at once, leaving itself free to make an "exhaustive" study at the unhurried pace and in the cold, disinterested temper that befits a body of scientific workers.

One other matter: according to the preliminary announcement in the *Supplement* to the *Journal* of March 18th, it was intended that the committee should consist of "a dietician, a physiologist, a practising physician, a school medical officer, a medical officer of health of an industrial area, and a statistician." As far as it goes an excellent combination; but would it not be a good idea to empanel a human being as well? The excellent report by the *Week-End Review* "Hungry England" Committee fell short, in my opinion, because its members, all experts, could hardly have tasted, let alone tried to live on, some of the foodstuffs they recommended for the nutrition of millions of people, children as well as adults, in this country.—I am, etc.,

London, June 19th. JOAN MALLESON.

Arthritis and Allied Conditions

SIR,—It was with intense interest that one opened the *British Medical Journal* of June 17th to study the report of the Arthritis Committee, which has been eagerly awaited, and which is in so many respects the model of careful analysis and judicious criticism that was to be expected from the patient collaboration of such a distinguished group of practitioners. Nevertheless, it came as a shock to an orthopaedic surgeon to find that the seventeen physicians on the committee had taken upon themselves to include in their report what one can only describe as a pocket-manual on the orthopaedic treatment of arthritis. This suggestion, that one of the most difficult branches of a great specialty can be satisfactorily dealt with in four columns, seems to me a most dangerous one to put into the minds of the profession at large, and one which should not be backed by the authority of the British Medical Association. The fact that not a single orthopaedic surgeon was a member of a committee dealing with diseases which at all their stages provide problems for the orthopaedic mind makes the matter still more extraordinary—or perhaps one should say more comprehensible!

If the orthopaedic aspect of arthritis was to be dealt with in detail, surely the rough draft of this section should have been submitted to an authoritative body, such as the British Orthopaedic Association? Alternatively, no one could have objected to a paragraph stressing the need for attention to the mechanical aspects of all joint diseases, and encouraging co-operation with the orthopaedic surgeon.

As it stands, the section on orthopaedics at once provides details of some methods and ignores others of the greatest value. While in the sections on vaccine treatment and dieting warnings are given as to the complexity of these subjects and the difficulties of correct dosage, conversely in the orthopaedic section the provision of a spinal support, the treatment of flat-foot, the application of traction to stiff fingers, and many other difficult and controversial matters are lightly dismissed as simple affairs, within the scope of any practitioner.

Personally, as a member of the British Medical Association for the last twenty years, I feel it hard that its funds should be used to broadcast a document whose effect for years to come will be to lower the status of my own specialty, not to mention any depressing influence it may have on legitimate sources of professional income. I trust that the document, as it stands, will not be thrust further upon the profession without some judicious pruning or annotating.—I am, etc.,

M. FORRESTER-BROWN, M.S., M.D.Lond.
Visiting Surgeon, Bath and Wessex Orthopaedic Hospital and County Clinics, Somerset, Wilts, and Dorset; Honorary Orthopaedic Surgeon, Eastern Dispensary, Bath.

June 18th.

*** The memorandum on which this section of the report was based was written by a distinguished orthopaedic surgeon and approved by another. A relatively large space was given to this section after considerable discussion because the committee recognized that orthopaedic surgery had an important but not exclusive place in the treatment of arthritis.

SIR,—The British Medical Association committee's report on arthritis is really valuable, and a very clearly written summary. They have excluded specific arthritis, but I wish to mention in this connexion a peculiar form of syphilitic arthritis which must always be considered in making a diagnosis. In 1925, when I was in Vienna, Professor H. Schlesinger had two or three cases in his clinic at University Hospital which he named "arthro-lues tardiva." He had observed more than thirty cases since 1921; a brief description follows.

Arthro-lues tardiva is different from an ordinary syphilitic arthritis. This is a late form of lues, and there are usually no signs of syphilis in other parts of the body; no gummata in other parts. The skin, mucous membrane, nervous system, cardiovascular system, and the viscera are usually free from syphilitic invasion. This form is very similar to other sorts of arthritis, and shows varying clinical signs. The onset may be acute or insidious; fever, exudate, and deformity are sometimes present and sometimes not. The disease attacks one joint or several. Most of the cases occur in middle age, but sometimes in old age. The joints usually affected are the sterno-clavicular, sometimes the maxillary or intervertebral joints. It affects both knee-joints, with effusion of fluid or a fungus-like growth similar to that of inherited syphilis. The ankle, elbow, and wrist joints are occasionally affected, but never the hip-joints. When the disease travels from one joint to another, usually the first joint shows no sign of relief—unlike rheumatic arthritis. Most of the patients have severe pain, especially during the night, and usually have some pain on active movements. Joint functions are fairly well maintained; ankylosis seldom occurs. *X* rays show damage of periosteum, cartilage, membrane, and ligament, but, strangely enough, one articulating surface usually remains unaffected. The Wassermann and precipitation tests of the serum are usually negative, but exudate from the joint cavity is frequently positive.

For differential diagnosis, when this disease starts like an ordinary rheumatic arthritis it can be easily detected, because it is completely unaffected by salicylates. It is easy to distinguish from tuberculous arthritis with a small dose of tuberculin, and from gonococcal also with vaccine and smears. It is not likely to be mistaken for gout, with its characteristic symptoms.

There is one definite pharmacological diagnostic method. Apply plenty of mercury ointment upon the painful joint covered with lint, and leave it so the whole night. If the case is arthro-lues tardiva, two different signs occur. Either (1) the pain, which has been so severe that the patient could not sleep (in one case even for a month), disappears like a miracle ; or (2) the pain will increase in the first stage and relief occur after three or four hours or two days (Herxheimer). The second sign will be more manifest when mercury, bismuth, or arsenobenzol is injected. If arsenobenzol is used besides general and focal irritating symptoms a pain may arise in joints or bones which seemed healthy before. Anti-neuralgic agents have no effect on these pains, but intravenous sodium iodide relieves it. The treatment of this disease is, of course, careful antiluetic therapy. Arthro-lues tardiva has an extreme tendency to relapse.

This is a relatively rare disease, but with the foregoing facts in mind it should be easy to diagnose. Many of these cases actually have been sent to infirmaries permanently unfit for work owing to a mistaken diagnosis. I had experience of two cases during two years in Japan.—I am, etc.,

Hampstead, N.W.3, June 22nd. DENZABURO KATO, M.D.

SIR,—In the report of the B.M.A. Committee on the Causation and Treatment of Arthritis (*British Medical Journal*, June 17th) I find the statement that " a recent writer . . . has found evidence of abnormal sulphur metabolism in arthritis . . . but other workers have failed to confirm this." I should be very grateful to the writers of the report if they could tell me who are these other workers. In my extensive study of the literature on this subject—English, American, German, and French—I have found only confirmation of the presence of sulphur metabolism disturbances in certain chronic rheumatic patients. May I suggest that in writings of such importance, when there is a question of a technical point, references should be given—I speak, of course, of references to published work, because it is the only work that counts—otherwise statements are apt to be erroneous. All those who have studied the metabolism of sulphur in chronic rheumatism have found that it is disturbed, and this is confirmed by the marvellous therapeutical action of sulphur in the hands of those who know how to use that remarkable agent.—I am, etc.,

London, W.1, June 17th. A. P. CAWADIAS.

Chloroform, the G.P., and Midwifery

SIR,—I have been much interested in the letters relating to the general practitioner and midwifery, and enjoyed greatly the papers from Professor Munro Kerr and those who followed. I do not intend to intervene in this correspondence, except to say that it has been the principle of the Rotunda Hospital for over a century to train post-graduate students and nurses to conduct an obstetrical case in hospital as they would in a cottage. The technique and ritual of the institution work for this object. It is the letter on chloroform in your issue of June 17th (p. 1079), in which my name is mentioned, that necessitates these words.

My views on chloroform are as follows: (1) It is a pleasant anaesthetic. (2) It is a dangerous anaesthetic. (3) It is quite justifiable for the general practitioner or specialist to use it when he is thoroughly trained and takes the whole responsibility. (4) In a maternity hospital, where juniors of small experience *must* give some anaesthetics, a well-nigh fool-proof substance like ether is safer, and therefore should be used. The danger is borne out by two deaths from chloroform at the Rotunda during the early years of my Mastership ; it is borne out by the occurrence of deaths in that magnificent institution the Maternity Hospital in Glasgow, which may be regarded as the home of chloroform. A note of these deaths will be found in the clinical reports of these hospitals, and they are not hidden. It is borne out by the opinions of trained anaesthetists—for example, Shaw and Beckett of Dublin—and of experienced obstetricians—for example, W. Gilliatt and T. M. Healy.

I have the greatest regard and respect for the work of the general practitioner. I am perfectly certain that Dr. Welsh will continue to give chloroform with safety, and so shall I. There is, however, great danger in its indiscriminate use, and the danger may occur very early in its administration. I trust I have made myself clear, as I do not wish to be drawn again into a correspondence on this subject. I should be delighted to have a talk or a personal correspondence with Dr. Welsh at any time.—I am, etc.,

BETHEL SOLOMONS,
Dublin, June 20th. Master, Rotunda Hospital.

SIR,—I am surprised at Dr. Solomons's reported statement that deaths occurred after even a few breaths of vapour of chloroform. With all due deference to Dr. Solomons I simply do not believe it. After long experience of the administration of chloroform in midwifery and surgical and dental practice I am convinced that practically all fatal cases are due to an overdose, though it must be acknowledged that the capacity of a few persons is limited ; but so it is with all anaesthesia. So far I have administered chloroform at 1,626 confinements, no deaths resulting under it, and never the slightest cause for uneasiness, even though a midwife did assist at administering. My surgical and dental cases number 1,357, again with no fatalities under the anaesthetic, chloroform alone being used, and only in the rarest instance giving any concern. Dr. Welsh is right, and he can rest assured that all that is required is faith in chloroform (administered without the use of unnecessary gadgets) and in the administrator.—I am, etc.,

Cowdenbeath, Fife, June 19th. JOHN B. PRIMMER.

"New Treatments for Old"

SIR,—One could not reply point by point to Dr. W. N. Leak's letter in the *Journal* of June 24th (p. 1126) without taxing the patience of a very long-suffering editor, but I cannot allow the assertion that I regard the members of the profession as " gullible fools " to stand uncontradicted. I would not apply such an opprobrious epithet even to the ten thousand doctors who testified to the marvellous properties of " yadil." I know that a general practitioner is not necessarily a general paralytic, but he *is* generally preoccupied, and the pressure of his life prevents him from putting into practice those excellent precepts concerning controls, etc., which he has learnt from his teachers, even as it prevents him from developing that detachment which is so necessary for the formation of judgement concerning the facts collected by experience. Dr. Leak's little story is a case in point. I congratulate Miss Leak on her rapid recovery from bronchopneumonia, but having seen, as many other practitioners have seen, equally dramatic recoveries without any medicine at all, I think it would be wise to defer judgement as to the relation between the remedy and the recovery. This does not mean that I would deny that there might be a relation. Only fools deny possibilities in medicine. But without adequate controls, it is folly to make claims for any therapeutic measure.

Dr. Leak has waxed very witty over my suggestion as to the possibility of suppressing disease. The idea, of course, invites burlesque, but I could quote numerous cases, in my own practice and that of others, which would demonstrate to any reasonable man that the idea is not so ludicrous as Dr. Leak would label it. Dr. Leak has never seen it, but then he has never entertained the possibility of its occurrence, and so would probably not recognize it even if he did see it. I know quite well why guinea-pigs and cats are used, and know, too, that the object of the profession is to make sick people well. But I seem to recall that John Hunter, and many other workers, particularly in anaesthetics, have made *themselves* temporarily ill, and have thereby made a greater contribution to medicine than a vast sacrifice of guinea-pigs could have secured.—I am, etc.,

Liverpool, June 24th. F. B. JULIAN.

Genesis of Gall-stones

SIR,—We are anxious not to occupy your valuable space with a lengthy reply to Dr. Shiskin's letter in your issue of June 17th; in fact, her attitude in allowing Lord Moynihan to quote her results without the details being subsequently published protects her from either adequate appreciation or criticism of her work. Nevertheless, as presented, the work is, in our opinion, full of simple statistical fallacy, of neglect of fundamental facts, and of failure to separate her categories.

From the statistical aspect we still fail completely to understand why a group of normal figures should be divided into those below the average value, which are to be called "normal," and those above the average, which are to be called "high normal." This surely brings at once an entirely unjustifiable bias into any interpretation of analytical results. Dr. Shiskin does not appear to understand our remarks about exaggeration of ordinates. We made no reflection whatever on the accuracy of the plotting of the curve; we referred to the unusual scale adopted for the ordinates, which scale is exaggerated to emphasize pictorially the trend of the results, especially as the normal values are set almost at the base line.

We have emphasized over and over again the importance of estimating the plasma cholesterol in both free and ester forms, and that the presentation of total cholesterol values alone ignores the more interesting and informative changes in the free to ester relation which throw light on the underlying factors which govern cholesterol metabolism. Dr. Shiskin persists also in ignoring the wide range of values of plasma cholesterol in healthy individuals; surely it is absurd that she should consider the extremes of normal as constituting either hypo- or hyper-cholesterolaemia when they are, nevertheless, findings in normal subjects. It is indeed fairly obvious that the distribution of her own analytical results in both gastric and duodenal ulcer cases does not show the occurrence of hypercholesterolaemia, but only a perfectly normal distribution more typical of the wide range of normal values than those figures which she obtained from the study on nine men and three women only.

In cholelithiasis it is now quite useless to determine averages of total cholesterol values in plasma without regard to the different categories into which the cases fall—especially as separation by both chemical and clinical means is generally possible.

Lastly, it is obvious to anyone reading our letter that we were not criticizing Lord Moynihan for not having read in 1925 papers which were published at a later date, but were referring to his letter published in your issue of May 27th, 1933.—We are, etc.,

J. A. GARDNER.
London, W., June 19th. H. GAINSBOROUGH.

Treatment of Combined Sclerosis

SIR,—In your issue of June 24th (p. 1091) Dr. L. J. Witts, discussing the treatment of subacute combined degeneration, writes: "I am not convinced of the value of massive doses of iron in subacute combined degeneration, as I have seen subacute combined degeneration develop in a woman who was having massive doses of iron for a microcytic anaemia." At St. Mary's Hospital we have obtained such uniformly good results from this treatment that it would be interesting to know exactly how much iron this patient was taking. In following up our series of cases for a period of over a year it has now been found that patients will relapse should the dose of Blaud's pill be lowered below 40 to 50 grains a day. In a few cases the dose has had to be maintained at over 100 grains a day to prevent a return of symptoms.

During a discussion of this treatment at a recent meeting of the Clinical Section of the Royal Society of Medicine one speaker mentioned that he had just seen one of Dr. Witts's cases of microcytic anaemia in which subacute combined degeneration had developed in spite of treatment with massive iron therapy. He went on, however, to say that the patient had only been having 45 grains of Blaud's pill a day, which in our series of cases may constitute a "relapse" dose. I should be interested to know if Dr. Witts has ever found the development of nervous symptoms during treatment with over 100 grains of Blaud's pill a day, since some cases appear to require this amount in order to maintain the improvement in their nervous symptoms. I mention this point because in one or two instances the importance of administering the full 150 grains has been insufficiently realized by other observers, and consequently the benefit derived by the patient has been lessened.—I am, etc.,

St. Mary's Hospital, W.2, June 23rd. WILLIAM SARGANT.

Hernia and Appendicectomy

SIR,—I have followed with interest the correspondence concerning hernia and incisions for appendicitis. There seems to be a very strong case for using the gridiron incision for all cases in which the diagnosis is tolerably certain and the right paramedian for all dubious cases. Working on these lines one finds that a gridiron incision seldom proves amiss when used for men, though a paramedian is not infrequently necessary for women and children. Additional help is often afforded by palpating the abdomen when the patient has been anaesthetized—a lump previously masked by rigidity is not uncommonly disclosed, and the appropriate incision chosen. The chief objections to this practice appear to be the possibility of missing the diagnosis when using the gridiron incision and the difficulty of access to an adherent retrocaecal appendix through a paramedian incision. Actually, by selecting the cases, little trouble occurs. When a gridiron incision has been made in error any other surgical lesion can usually be excluded by looking for marked excess of peritoneal exudate; by deciding whether the appendix is inflamed from within or from without; and by exploring with a finger.

On looking through from four to five hundred personal cases of acute abdominal disease I can only find one in which the patient definitely suffered as a result of a gridiron incision. I removed an innocent-looking appendix, and could find nothing else abnormal, but one year later the patient returned with an acutely inflamed Meckel's diverticulum, which had evidently been the cause of the trouble. On those occasions when a case of supposed appendicitis proves to be, say, a perforated peptic ulcer

or a perforated gall-bladder, it seems much better to close a small gridiron incision and make a paramedian in the proper place. For many other lesions an extended gridiron gives adequate access.

Another marked advantage of the gridiron incision is its excellence from the point of view of drainage, as it is so admirably adapted to the method of delayed suture (as advocated, for instance, by Wilkie, *British Medical Journal*, February 14th, 1931, p. 253), in which the superficial parts of the wound are left unsutured at least for the first few days. Since adopting this method of delayed suture for really bad suppurating cases I have found not only that the patient gets well more rapidly, and that the wound heals more quickly, but also that incisional hernia and weakness of the scar is actually less common than is the case when the wound is sutured round a drainage tube, or when stab drainage is adopted and the wound closed. In these circumstances an abscess forms in the wound, and the stitches have to be removed just when they should be tied.

Weak scars as the result of sepsis are common, and inguinal hernia occurring as the result of any special incision must be at any rate comparatively rare, so surely one's attention should be focused on getting a sound scar rather than on the possible sequel of an inguinal hernia! In order to insert a tube through Battle's incision, where the rectus has been retracted inwards, one must either have a kinked run for the tube or use an unusually stiff tube to keep the track straight, and so not only increase the liability to faecal fistula and adhesions, but also aid and abet the suppuration.—I am, etc.,

Birmingham, June 18th. R. K. DEBENHAM.

Prophylaxis of Malaria

SIR,—Dr. A. L. Hoops, in an interesting article on the cure of malaria with atebrin (*Journal*, June 10th, p. 993), states that it has been clearly proved that quinine prophylaxis is a delusion and a snare. This is a sweeping statement, which needs, at least, qualification.

Quinine prophylaxis may or may not be of use in the East—I am not in a position to express an opinion. In West Africa, however, where malaria is almost exclusively subtertian, it has a definite place in the maintenance of health among the European community. There the majority of Europeans take five grains of quinine daily. It is the irregular or non-quinine taker who is continually getting malaria. The regular taker is not immune, but seldom suffers from malaria. I am convinced that they do not suffer from undiagnosed malaria, as for six years I have advised people going on leave to continue their quinine during the voyage (two weeks) only. If they have had malaria during the previous six months I advise a further two weeks' quinine. I have followed up as many cases as possible, and none have developed malaria in England. I have stopped or reduced my own prophylactic quinine three times (once after two years' freedom from malaria), and each time I developed malaria within three weeks. I continue prophylaxis for two weeks only after leaving the coast, and have never developed malaria in England.

Although a small minority, the irregular or non-quinine takers account for almost all the cases of blackwater fever. I, personally, have yet to see a case of blackwater fever in a regular quinine taker. Regular quinine is, in practice, good prophylaxis against subtertian malaria. In West Africa it has stood the test of time.—I am, etc.,

Edinburgh, June 20th. O. G. WILDE, Medical Officer, W.A.M.S.

Pancreatitis in Mumps

SIR,—Dr. Cole's interesting letter of June 17th (p. 1080) prompts me to record a case which occurred in my practice in 1929.

A girl, aged 13, had a moderately severe attack of mumps, but without vomiting or abdominal pain: she had apparently made a satisfactory recovery when attendance was discontinued. A month or so later her mother brought her to see me, and I was astonished to find that from being a plump, well-developed girl she was now almost emaciated. Her urine was loaded with sugar. Her symptoms, in conjunction with an abnormally high blood sugar content, made it clear that she was suffering from diabetes. I sent her to the Manchester Royal Infirmary, where she was admitted as an in-patient, and after some weeks put on insulin. She now looks in perfect health, but if the insulin is reduced there is glycosuria, and a recent blood sugar estimation showed a percentage of 0.32 one hour after 50 grams of glucose. There is therefore little prospect that she will ever be able to discontinue insulin treatment without risk.

Though such a sequel to mumps is certainly rare, it is evident from this and other recorded cases that the condition of the urine during the attack, and in apparent convalescence, requires more attention than has generally been given to it hitherto.—I am, etc.,

Manchester, June 19th. J. STAVELY DICK.

SIR,—Here's some more. Last winter a middle-aged male patient of mine had mumps. A week later he was afflicted suddenly with acute abdominal pains with tenderness over the pancreas, and urgent vomiting and pyrexia. For several days he was very ill; and convalescence, not yet complete, was accompanied by the passage of occult blood. About the same time a young man had almost precisely similar symptoms a week after starting mumps. He, however, passed no blood, and he got well quickly. Mumps does seem to be a malady of which to be wary!—I am, etc.,

Walsall, June 25th. FRANK G. LAYTON.

Aetiology of Acute Rheumatism

SIR,—Dr. Aston Key's letter (*Journal*, June 17th, p. 1081) raised the question of the relation of dampness to the aetiology of acute rheumatism, though the importance of its association remains a mystery. Another factor which remains unsolved is the relation of rheumatism to what are called "growing pains." "Growing pains" mean something different to every observer (or else nothing at all), and may best be described as pains in the limbs susceptible of no other diagnosis—in other words, the diagnosis is a dump-heap of unexplained pains in a child's limbs. Observers are divided as to whether these pains are rheumatic manifestations or not, but the fact remains that many a case of heart disease develops as a sequel to what has amounted to nothing more, in the eyes of parents, than transient growing pains in a child.

An investigation into growing pains (taken as pains in the limbs which admit of no other diagnosis) has shown certain differences in the anthropological type from rheumatism, but in the question of damp houses there is a distinct parallel. Out of 500 cases investigated at University College Hospital in 1928, a history of "growing pains" having occurred was twice as common in children from damp houses as in those from dry ones, the figures being 24.3 per cent. in dry houses as against 48.3 per cent. in damp ones. This tendency may have some bearing on the relation of frank rheumatism, vague limb pains, and dampness.—I am, etc.,

London, W.1, June 16th. J. C. HAWKSLEY.

Dyspepsia of Sympathetic Origin

SIR,—I have been greatly interested in the recent articles of Dr. F. C. Eve[1] and Mr. J. J. Robb[2] in the *British Medical Journal*. Both of these clinicians incriminate the sympathetic system as the cause of that dyspepsia which is due to a lack of relaxation of the sphincters and to sluggish peristalsis of the gut. Mr. Robb gives a very complete list of the causes of sympathetic disturbance, but omits one that is by no means rare—namely, malposition of one or more vertebrae and consequent irritation of the sympathetic. As has repeatedly been shown by E. F. Cyriax,[3] these subluxations often cause the symptoms and signs to which Dr. Eve and Mr. Robb refer. I would therefore suggest that the "small group where I have failed to demonstrate any lesion" mentioned by Mr. Robb be investigated with a view to detecting some spinal abnormality.

As regards treatment, both authors have tried atropine, Dr. Eve with success. It seems difficult to reconcile this use with the fact that atropine is not known to have any action on the sympathetic system, but only on the vagus. In any case the prolonged treatment that is necessary when medicines are employed can often be greatly shortened by a most simple procedure that anyone can adopt who has a little patience. Where there is spasm of the gut—for example, in the pyloric region or along the colon—this spasm, whatever its cause, can be relaxed by a gentle manual vibration on the spastic area, which is usually easily identified by touch. (This is by no means the whole of the treatment as I do it, but is its important central feature.) Now if this is done for ten minutes—say, every day for a week or so—the offending sphincter or piece of gut acquires once more its power to relax, and a permanent cure often results.

Naturally, when there is an obvious cause for the sympathetic disturbance, such as a chronic appendicitis or a misplaced vertebra, this treatment is unnecessary, but in the much commoner cases where the origin of the trouble is doubtful this symptomatic measure is often enough to secure a cessation of symptoms for many years. The full manual treatment of the abdominal sympathetic was described by E. F. and A. K. Cyriax in 1910,[4] and their experience during the last twenty years has confirmed them in their view of its great utility—an observation that I in my turn, though on many fewer cases, am once more corroborating.—I am, etc.,

London, W.1, June 6th. J. H. CYRIAX.

Metamorphosis of Filaria bancrofti Cobbold

SIR,—In the issue of the *Journal* of February 25th (p. 301) there is an interesting paper by Dr. P. Manson-Bahr on the history of British discoveries in tropical medicine. Owing, I have no doubt, to condensation, this paper hardly does justice to the discoveries of Dr. T. L. Bancroft, his part in filarial research being dismissed in the brief statement:

"The actual time-cycle development of the filaria in the mosquito was worked out first by Dr. Carmichael Low in 1900 on material sent to Manson by Thomas Bancroft, the son of Joseph aforementioned."

The great obstacle facing early workers on mosquito-borne diseases was the prevailing idea that female mosquitos only fed once and died after laying their eggs. This it was that prevented Manson, Lewis, and other early workers from discovering the full life cycle of the worm, and led them into erroneous conclusions concerning the mechanism of transmission from the insect to man. It was because of the same idea that Bancroft, in his earlier experiments with bred mosquitos, failed to find the more advanced stages seen by Manson in captured insects, a failure that puzzled him greatly. To use his own words: "It never dawned on me that my mosquitos were dying from starvation!" To my mind, the real genius of the work of the late Sir Ronald Ross and of T. L. Bancroft, working at the same time, independently, in widely separated parts of the world, was the realization that this entomological belief was untrue and the immediate experimental proof that mosquitos would live many days and feed many times.

Once he had discovered how to keep mosquitos alive for considerable periods the rest of the work was comparatively simple, and in a paper read before the Royal Society of New South Wales on June 7th, 1899, Bancroft described and figured the various stages of the larval filaria in the mosquito, giving the time of development as from sixteen to thirty-five days, according to season. He also described his methods of rearing and handling mosquitos. He did not see the larvae in the proboscis, and, in the body of the paper, suggested that infection was contaminative. However, in an addendum he pointed out that, as the full-grown larvae were killed by water, it was probable that they would be killed by the digestive juices, and he makes the following significant statement:

"It has occurred to me that the young filariae may gain entrance to the human host whilst mosquitos bearing them are in the act of biting. The entrance of warm blood into the mosquito may excite the young larvae, in consequence of which they . . . pass down the proboscis into the human skin."

In 1900 Dr. Low found the larvae in the proboscis of infested mosquitos which had been sent to London by Dr. Bancroft. Thus he completed the final chapter in the story, which was commenced by T. R. Lewis in 1872 with the discovery of the embryo filariae in the blood, continued by Joseph Bancroft in 1877 with the discovery of the adult worms, developed by Patrick Manson in 1878 with the discovery of the larvae in the mosquito, and brought to a climax in 1899 by the work of T. L. Bancroft.—I am, etc.,

Canberra, May 10th. I. M. MACKERRAS, M.B., B.Sc.

Cancer Families

SIR,—In your correspondence columns, rather more than two years ago, appeared letters on the high incidence of cancer in some families. The following history has come to my notice and seems to be worthy of record. With the death of my patient, Walter, the family is now extinct.

His mother died when about 34 of cancer of the "womb." His mother's two brothers both died of cancer of the liver when between 40 and 50 years old. (His father died of "senility" at 70.)

His brothers and sisters: Sarah died at 30, William at 38, Harry at 28, and Alfred at 30—all of cancer of the rectum. Joe died at 30 of "abdominal" cancer. Walter died at 48 of multiple abdominal secondaries (confirmed by laparotomy); the primary was not established.

—I am, etc.,

London, W.1, June 21st. HAROLD DODD.

[1] "Disordered Regulation of Traffic in the Gut," *British Medical Journal*, March 4th, 1933.
[2] "Dyspepsia and its Surgical Significance," ibid., June 3rd, 1933.
[3] "On Various Conditions that may Simulate the Referred Pains of Visceral Disease, and a Consideration of These from the Point of View of Cause and Effect," *Practitioner*, 1919, cii, 314.
[4] "Manual Treatment of the Abdominal Sympathetic," *New York Med. Journ.*, 1910, vii, 193.

Obituary

FRANK JEANS, F.R.C.S.

Surgeon, Royal Infirmary, Liverpool.

We regret to announce the death at Harrogate, on June 21st, of Mr. Frank Jeans, whose outstanding ability as a general surgeon and urologist has made him well known and highly esteemed in Liverpool and London.

Frank Alexander Gallon Jeans, third son of the late Sir Alexander Jeans of Liverpool, was born at Derby in 1878, and received his medical education at St. John's College, Cambridge, Liverpool University, and King's College and St. Bartholomew's Hospitals. In 1904 he obtained the diplomas M.R.C.S., L.R.C.P., and two years later graduated M.B., B.Ch.Cantab. In 1907 he became a Fellow of the Royal College of Surgeons of England. After a term as house-surgeon to Sir William Mitchell Banks, he was appointed assistant surgeon to the Royal Infirmary, Liverpool, in 1909, and was elected honorary surgeon in 1924. His work at the Royal Infirmary was one of the main interests of his life. He was also consulting surgeon to the Hoylake and West Kirby Cottage Hospital, and the Waterloo and District General Hospital. For many years he maintained a close connexion with the University of Liverpool, where he had previously held a scholarship in surgical pathology and had been a demonstrator in anatomy. He was subsequently appointed lecturer in clinical surgery. A vice-president of the Liverpool Medical Institution, he was very active in the work of that society.

Soon after the outbreak of war in 1914 Jeans was placed in charge of the surgical division of the Liverpool Merchants' Mobile Hospital, with the temporary rank of Major, R.A.M.C., and served with it in France until the end; in 1916 he was appointed senior surgeon to the unit.

His special interest in urology brought him into considerable prominence, and he acted as consultant in this respect to the Liverpool Medical Research Organization. The position he held in the eyes of his colleagues in the specialty was proved by his election as president of the Urological Section of the Royal Society of Medicine for the session 1929–30.

Frank Jeans was the possessor of a lively wit and a great gift of fluent speech, which he could adapt to suit any occasion, ceremonial or informal. He was a welcome guest at social functions of all kinds, and a popular lecturer who marshalled his facts clearly and drove them home with humour appropriately introduced. As a teacher, at the bedside or in the lecture room, Jeans's vivid personality and gift of incisive phrase combined to impress his words upon the student's memory. He shone especially as an after-dinner speaker. A keen lover of music and the drama, he brought to social life a zest for its enjoyment which was infectious. His wife, who had been very active in Red Cross work during the war, died in 1928. He leaves a son and a daughter. He was for many years a member of the Lancashire and Cheshire Branch of the British Medical Association.

His death at the height of a brilliant career is deplored by a very wide circle of colleagues and friends.

[The photograph reproduced is by Burrell and Hardman Ltd., Liverpool.]

THE LATE MR. HAMILTON RUSSELL

Mr. C. H. FAGGE writes:

News has just reached me from Melbourne of the passing of Hamilton Russell. Our first personal contact was a walk across Edinburgh when the Association of Surgeons met there in 1921. Last year one of the first faces I recognized on arrival in Melbourne on the night express from Adelaide was that of Hamilton Russell, who paid me this honour in spite of the early hour and his ambulatory difficulties. I saw him daily during my visit, when he was ever helpful with a word of encouragement or appreciation. One evening, in the house of another surgeon, the Council of the Royal Australasian College of Surgeons were meeting me at dinner. Hamilton Russell came in, and was persuaded to sit down at the piano, and I am sure we all were sorry when dinner was announced. One of the extraordinarily powerful features of medicine in Melbourne is the character of its senior representatives—Sir Richard Stawell, Sir Henry Maudsley, R. Hamilton Russell, Julian Smith, and Sir James Barrett are names which come to my mind: any one of them can ill be spared. The gentleness and humility of Hamilton Russell's personality, the sweetness of his smile, and his pathetic cheerfulness, in spite of physical pain and its limitations, endeared him to everyone; though doubtless in his modesty he would barely admit it even to himself. Those of his homeland who knew and loved him extend the hand of sympathy to his friends in the land of his adoption.

Sir G. LENTHAL CHEATLE writes:

The motor accident in which Hamilton Russell was killed deprived Australia of a man whose clean, wholesome, and active life was an example to manhood. His exceptionally handsome, refined, and attractive face was a mirror of his mind. None who knew him could fail to realize from the look of that striking head that he was imbued with a terse, blunt honesty; yet the spontaneity of his merry, never boisterous, laugh, the sincerity of his genial welcome, and the charm of his presence can never be forgotten. His detached and aloof expression might have led one to suppose its possessor incapable of bearing down heavily on things he considered wrong. This supposition was immediately exploded when one of his friends or juniors was not attaining his own high standard of correct conduct. Russell had an eclectic and meticulous taste in music, morals and dignified behaviour, and any thing that offended that taste met with a sharp and peremptory reminder that such things should be neither done nor said. This influence was very salutary to those who looked upon him as an Admirable Crichton, and it was also decisive when applied to impressionable youth. By all accounts we received from his friends and admirers in Australia this influence on younger people was maintained in the country of his adoption. He was also a little dogmatic in his method and manner, but all knew that he spoke truth, and it made a lasting impression in moulding our characters. He never told us why he was going to leave England, but we knew that he went to the beautiful climate of Australia to escape from a fear of tuberculosis. It is good to know that in Australia his integrity and professional ability were as highly appreciated as they would have been had he remained in London. There would have been no opposition to his election on the staff of King's College Hospital. He was house-surgeon to Lister, but not the last one. He was followed by five others.

Russell remained a bachelor. He had friends whom he loved as deeply as they loved him; but probably his greatest companion in life was his piano. Wherever he was a piano acted as a magnet to him, and after a time he would wander up to it and begin to play, always classical music. Whether his notes were always correct I am unable to say, but he never played from score. Although Russell had retired from active practice his colleagues realized the intense interest he continued to take in the surgical work going on around him. Attractive influence of this kind would be of value and would make itself felt in any country where it existed. Australia will miss him equally with his friends at home.

Dr. GEORGE BRADLEY HOWE of Stalybridge, Cheshire, died on June 15th, after an illness lasting about five months. The son of the late Dr. John Howe, he was born in Marple in 1865, and was educated at Epsom College and Owens College, Manchester. He obtained the L.S.A. in 1888 and the M.R.C.S. in 1892. In the latter year he went to Stalybridge as an assistant in the practice to which he ultimately succeeded. Since 1903 he had been district medical officer for that locality, and a few years later was appointed public vaccinator. He became school medical officer in 1925, and played a considerable part in building up this work on a sound and effective basis. He retired from this post in 1931, when a whole-time medical officer was appointed. For three years he was a member of the town council, retiring in 1901 ; two years later he was placed on the commission of the peace in recognition of his long and devoted service. He was one of the original members of the Stamford Golf Club and the first winner of its Cheetham Cup. A keen sportsman in his earlier life, Dr. Howe did all in his power to promote local cricket and tennis clubs in his later years. He had been a member of the British Medical Association since 1895, and was chairman of the Hyde Division in 1922. His wife died last year, and he is survived by six daughters.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons this week read the Metropolitan Police Bill a third time and the Sea-Fishing Industry Bill a second time. The vote for the Mines Department was down to be debated.

The Rent and Mortgage Interest Restrictions (Amendment) Bill and the Unemployment Insurance (Expiring Enactments) Bill passed through committee of the House of Lords, and the Blind Voters Bill was agreed to on report. The Finance Bill was read a second time and the Commons' amendments to the Pharmacy and Poisons Bill were down to be considered by the Lords.

The University Spurious Degrees Bill was down for the committee stage in the House of Lords on June 29th, but its withdrawal was expected. An agreed Bill may be substituted.

The Juries (Amendment) Bill was introduced in the House of Commons on June 20th by Mr. Holford Knight, and read a first time. One of its provisions would delete from the Rules of Court under the Sex Disqualification (Removal) Act the exemption from jury service of " any women who are for medical reasons unfit to attend." It would substitute words: " Exempting from attendance as jurors any person to whom special hardship would be caused on account of physical unfitness or business or household considerations."

On June 26th the Manchester Royal Infirmary Bill, which has been changed from the Manchester Corporation Bill, came before the House of Commons. On the motion of the Chairman of Committees, the Standing Orders were suspended, and the Bill was read a second time.

On June 26th the second reading of the Middlesbrough Corporation Bill, which contains clauses for the compulsory notification of infectious disease, was objected to, and postponed accordingly.

The Essex County Council Bill, which has passed through the House of Lords, was down for second reading in the House of Commons on June 26th, but objection was taken, and the Speaker announced that the second reading would be set down for the evening of June 28th.

Department of Health for Scotland

The Estimates for the Department of Health for Scotland in the year 1933-4 came before the House of Commons in committee on June 22nd. They included the grant-in-aid of the Highlands and Islands Medical Service and grants-in-aid of benefits and expenses of administration under the National Health Insurance Acts. Mr. A. N. SKELTON, who introduced the Vote, said that houses completed in Scotland in 1932 numbered 15,818 ; houses under construction at December 31st last, or approved and not constructed, numbered 30,777, the highest figure reached in Scotland. In the five months since that date tenders had been approved for 3,739 slum clearance houses. Local authorities in Scotland were responding fully to the task of clearing the slums. He was not satisfied with the figures for public health. Maternal mortality went up from 5.9 per 1,000 in 1931 to 6.4 in 1932. It had increased steadily since 1855—a mysterious phenomenon, not confined to Scotland. The Department had made close investigation into a number of maternity cases, but the doctors said it must supplement these with the records of all cases. In the middle of December, 1932, the Department instituted an investigation, to extend over six months, into every childbirth in Scotland. That period had just closed, and he believed they would have data more complete than existed elsewhere. Infant mortality figures for 1932 were 86 per 1,000, or 4 per 1,000 above the figures for 1931 and one above the average of the last five years. For a long period of years Scottish infant mortality had been definitely higher than English. Medical experts were not clear about the cause, but he thought the weather should be taken into account. Analysis of the English figures showed that, broadly speaking, infant mortality increased as one went North. In Northumberland and Durham the figures were almost exactly comparable with the Scottish figures. Ten years ago Sir Leslie Mackenzie came to the tentative conclusion that there was some relation between the climate and infant mortality. Not the intensity of the climate, but its variability was its evil influence on the very young. The only feature with regard to infectious diseases to which he drew attention was that last year an epidemic of scarlet fever in Scotland brought the cases from 18,000 to 28,000. When scarlet fever spread to Shetland the local authorities made available to all private practitioners means of immunizing their patients. He proposed to follow up the question whether more could be done in preventing infectious disease. In Scotland one inspection of the dairy herds annually by veterinary officers was statutory. Many counties had three. These resulted in earlier detection of the tuberculous cow and earlier elimination of the risk of infection.

Mr. DUNCAN GRAHAM remarked that of 87,903 houses inspected in Scotland last year one-sixth were admitted by the Department of Health to be unfit for human habitation. The Labour Opposition contended that single- or two-roomed houses were slums, whether in town or in country. Any doctor worthy of the name must describe these houses as unfit for human habitation. The main cause for the increase in maternal and infantile mortality was poverty. Medical authorities had stated that the infantile mortality rate was one-third in the middle classes of what it was in the ordinary working classes. In the mining villages it was as high as 260 per 1,000. Medical benefit should be secured to unemployed persons, who were threatened with the loss of it at the end of this year. He and other members for Lanarkshire had met the county medical panel committee, including representatives of the doctors, and it had expressed strong feelings on the proposed change. Doctors in the rural areas of Dumbarton, Renfrew, and Lanark should not be asked to make any more sacrifices. He urged that the National Health Insurance Act should be modified to ensure that the State paid the cost of medical attendance in the cases of men unemployed. Sir ARCHIBALD SINCLAIR welcomed the inquiry into the health services. He asked what proposals had been submitted to local authorities for the improvement of maternity services, and whether they were being put into operation. Why was the grant for the training of midwives and health visitors reduced from £3,260 to £2,700? An increase in the consumption of milk would be one of the best means of improving the diet of the people, but to do that they must eradicate tuberculosis by such means as those successfully employed on a large group of farms in Ayrshire.

Mr. MCGOVERN moved a reduction of the vote. Mr. DAVID MASON said the unemployed persons who, if the law did not change, would lapse from national health insurance medical benefit on December 31st were about 20,000 in Scotland, and 100,000 all told. Mr. HENDERSON STEWART contended that

in any county of Scotland about 50 per cent. of the cottages in the villages could be improved by the application of the Housing (Rural Workers) Act. The number of houses so improved declined last year. Rickets increased in Scotland last year, and there was a decrease in population. Part of the blame for the fall in the general health of the Scottish people rested with those responsible for housing. Mr. R. W. SMITH said the increase in maternal mortality was due principally to puerperal sepsis. Was it more common to have this infection in institutional treatment? There was a considerable increase last year of births in institutions as compared with previous years. The present policy of the Department was to encourage institutional treatment of maternity cases. Would it not be wiser to encourage home treatment till they were quite certain what they were doing?

Mr. SKELTON, replying to the debate, said the figures Mr. Smith gave on puerperal sepsis were undoubted. When the evidence of the six months' special investigation was before the experts they might trace the causes of puerperal sepsis and tell whether it was more frequent in institutions. In their opinion on the causes of infant mortality the medical profession and the medical advisers of the Department were not conclusive, but variability of type seemed a strong factor. He thought hard times also an important factor. The question of medical benefit for the unemployed would come before the Cabinet. He thought that by administrative manipulation the benefit might be continued.

Mr. McGovern's amendment was defeated.

A discussion followed on the Vote for public education in Scotland, and on the Vote for the salaries of the Scottish Office.

Road Traffic (Emergency Treatment) Bill

In the House of Lords on June 22nd Lord MOYNIHAN moved the second reading of the Road Traffic (Emergency Treatment) Bill, which, he explained, Lord Halsbury had helped to draft. It sought to redress iniquities which were admitted, considerable, and increasing. The experience of the medical profession was that since the Road Traffic Act, 1930, the public confidently believed that under the compulsory system of third-party insurance payment was made almost automatically to the out-patient departments of hospitals and to general practitioners who rendered emergency treatment. That view was inaccurate. By the help of the British Medical Association he had been able to ascertain with comparative accuracy that not more than one medical man in five who was responsible for emergency treatment received either verbal acknowledgement or payment for the services rendered by him. When a payment was secured it was only with difficulty, because the owner of the motor car lived at a distance from the place of the accident and because the insurance companies advised that any payment made by the owner of a motor car which had caused an accident admitted the guilt of the driver. The medical man who provided this aid had to supply drugs, dressings, and appliances, and might have to renew the furniture, couch, or carpets of his surgery The medical profession rendered an immense amount of gratuitous services to the public. He found roughly that 60 per cent. of the work that he had done in his profession had been unrewarded financially, and he was not distinguished from colleagues similarly placed. All the important services rendered by his profession in connexion with the voluntary hospitals, particularly the teaching hospitals, received no financial, or only a slight financial, reward. If ever there had been unanimity in the medical profession about an injustice to practitioners it was in connexion with emergency treatment. He could not say there was resentment in the profession, but dismay existed. The Road Traffic Act, 1930, made no provision for payment for services rendered in the out-patient departments of the hospitals, though these might be expensive to carry out and might save the insurance companies money by timely treatment. He was not concerned with in-patient treatment, though the loss there was considerable. It was computed that 35,000 out-patient treatments were given in a year at a cost of £12,000, and not one penny of that sum was returned to the hospitals. The Bill proposed a maximum fee of three guineas for treatment. King Edward's Hospital Fund suggested a larger sum, but that would include massage given, if necessary, after the first attendance. A preliminary demand should be made on the driver of the motor vehicle which would pay for the out-patient department treatment and for treatment given by the general practitioner. To secure this the sum paid for a driver's licence might be increased from 5s. to 7s. 6d., or the insurance premium increased by the same amount. There were 2,800,000 motor licences in the country to-day, and a charge of 2s. 6d. on these, or on the premium charged by the insurance companies, would more than suffice for the payments he proposed.

Lord HALSBURY asked the House to support the second reading. The Bill referred to "emergency treatment" and not to "first aid," because the St. John Ambulance Association said that "first aid" ceased at the moment the practitioner came in. The Bill dealt with emergency treatment, and not with the subsequent treatment which might be given in hospital. Lord Moynihan and the British Medical Association had put their claim with extraordinary restraint. The Bill should be modified in committee to cover the case of the motor car which ran over someone and drove on without stopping. Lord ONSLOW, Chairman of Committees, supported the Bill. He believed that there were 150,000 road accidents a year, and the cost should be borne by the motoring interest as a whole. At present the burden of emergency treatment fell on the doctors, the hospitals, the ambulance, and the general public. Disputed claims for treatment could be settled in a court of summary jurisdiction with an appeal to the county court. Lord DANESFORT welcomed the Bill, and praised the voluntary services of the medical profession. Lord BERTIE OF THAME thought the word "road" should be omitted from the Bill, as being too narrow, and that the Bill should be entitled the Motor Vehicle Traffic (Emergency Treatment) Bill. Lord KINNOULL recounted a case where an insurance company made provision for the medical expenses of a person who had been knocked down, but this person spent it, and did not pay the doctor or the hospital anything. There was no way of forcing such a person to pay. Lord LUKE informed the House that the King Edward Hospital Fund had combined with the British Hospitals Association to give evidence to the committee over which Lord Iveagh presides (the committee considering the Road Traffic (Compensation for Accidents) Bill), and had submitted an amendment to that committee to meet the hospital view. If Lord Moynihan's Bill also went to that committee it would be unnecessary for the Fund and the Association to give evidence again. Earl BUXTON, for the Liberal peers, supported the Bill, and said he had never heard a private member's Bill moved in a more able manner. The vast bulk of road accidents happened to persons who could contribute something for the medical help they received. Three guineas ought to be the minimum payment. Viscount KNUTSFORD thought that only professional aid should be compensated, and that the extra tax should be put on the driver's licence. That would bring in £300,000 a year, which Lord Moynihan and the British Medical Association must agree would more than compensate doctors for first treatment.

The Earl of PLYMOUTH, for the Government, noted that the Bill provided that the remuneration should be recovered from the owner of any vehicle involved, irrespective of fault or negligence, and that an additional sixpence per mile should be recoverable for every mile above two which the medical practitioner had to travel to the accident. In such cases medical practitioners and hospitals had a serious grievance, particularly small cottage hospitals near main roads. It was difficult to find a suitable remedy. Lord Moynihan originally suggested a central fund contributed to by insurance companies. He had departed from that, and proposed to place liability upon the owner of any vehicle involved in an accident, irrespective of fault or negligence. That ran counter to the established principles of jurisprudence. The Bill would fasten liability on a man for something for which he might not be in any way responsible, but gave him no opportunity of recovering from the person who was actually negligent. An additional levy of 2s. 6d. on motor licences, producing about £350,000 yearly, would almost certainly result in reduction of the voluntary payments now made to hospitals. He also thought it possible that many owners would ignore small accounts sent in by doctors of whom they knew nothing, and that, to recover, the doctors or hospitals would have to make out particulars of claim, go to a county court, and pay various fees. If the Bill went further, the Government would

have to ask for modification of Clause 5, dealing with vehicles owned by the Crown. Though he made these criticisms he agreed that medical practitioners and hospitals had a genuine grievance and that the subject called for further investigation. The Earl of HALSBURY explained that if the Bill became law any money paid by the owner of a vehicle would be recoverable, under Common Law, from the man really responsible for the damage. To incorporate this in the Bill was unnecessary. Lord IVEAGH, as chairman of the committee to which the Bill would be referred, said that committee would welcome it and Lord Moynihan.

The Bill was read a second time without a division and referred to the same Select Committee as that to which the Road Traffic (Compensation for Accidents) Bill stands referred. The committee was given power to consolidate the two Bills, and Lord Moynihan was added to the committee.

The Select Committee of the Lords on the two Road Traffic Bills was called to consider them on June 29th.

Cost of Public Mental Hospitals.—Replying to Mr. Grenfell on June 22nd Sir HILTON YOUNG said that a figure of £500 which appeared in the report of the Board of Control for the year 1931 was the Board's estimate of the capital cost of providing a bed in a mental hospital, and was not the estimated cost of each inmate of a mental hospital per annum. The annual cost of upkeep of the public mental hospitals and maintenance, supervision, and treatment of patients was not £70,000,000 in 1931, but approximately £8,000,000, which was defrayed from rate funds. In 1932 this figure was slightly reduced, though the number of patients increased by about 1,900. The suggestion that inmates for whom detention could not be proved to be necessary should be accommodated in hostels run on a hospital footing to save expense was impracticable. The preventive treatment of such cases needed resources of staff and equipment unobtainable in hostels under whatever central system of control they might be placed.

Europeans and Indians in the I.M.S.—On June 26th Sir S. HOARE, replying to the Duchess of Atholl, stated that in 1922 there were 326 Europeans in the Indian Medical Service (Civil) and 35 Indians, making a total of 361. In 1932 there were 195 Europeans in the Indian Medical Service (Civil) and 97 Indians, a total of 292.

Report of Royal Commission on Lotteries.—Mr. DOUGLAS HACKING stated on June 22nd that the Government had not yet been able to give careful study and attention to the Report of the Royal Commission on Lotteries. The Home Secretary could not give any undertaking that it would be possible to introduce legislation in the near future to deal with any part of the field covered by the recommendations of the Commission. Mr. Hacking added that he did not suppose legislation was possible during the present session.

Medico-Legal

INFANT BLINDED IN HOSPITAL

At the Liverpool Assizes, before Mr. Justice Atkinson, on June 21st, an infant, Ivy Greta, daughter of John Lee of Birkenhead, claimed through her father damages against the Birkenhead Corporation, Dr. R. A. Grant (medical superintendent of the infirmary), and Nurse M. O. Parry, on account of an accident sustained in the hospital ten minutes after her birth whereby through the application of nitric acid, presumably instead of silver nitrate solution, the child was blinded for life. After a consultation in the judge's room it was announced that the case had been settled. Mr. Goldie, K.C., who appeared for the child, withdrew all allegations against the corporation and Dr. Grant. He said that this terrible accident was in no way due to any breach of duty by the doctor. The corporation had met the case generously. The child would go to a sunshine home for blind babies, would be educated, and later, as far as possible for a blind child, trained for a profession. If unable to obtain employment, in which respect the corporation would do its best, the maximum amount under the Blind Persons Act would be paid, without any obligation on the parents or relatives to contribute. Mr. Gorman, K.C., for the corporation, said that the terms now accepted were offered some months ago. This was no eleventh-hour offer on the part of the corporation. Here was a terrible harm done to the child of a Birkenhead ratepayer, and the corporation felt it a duty to see the child through life. Mr. Eastham, K.C., for Dr. Grant, said that there was no rule or regulation of the hospital with which Dr. Grant had not complied. At the time of the accident he was away on holiday. The action against Nurse Parry would be discontinued, and no order would be made against her as to costs. Mr. Justice Atkinson said that the corporation had acted very properly and generously. It was clear that all charges against the corporation and Dr. Grant were withdrawn. A very unfortunate slip made by the nurse had led to these terrible consequences, and he expected everybody was as sorry for the nurse as for the child.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on June 22nd the following medical degrees were conferred:

D.M.—C. W. C. Bain, A. M. Cooke.
B.M.—E. J. Baldwin.

The electors of the May Fellowship and Readership in Medicine have appointed Alexander Macdougall Cooke, B.M., of Jesus College to hold office until the first day of Michaelmas term, 1935.

UNIVERSITY OF LONDON

The title of Professor of Medical Entomology has been conferred on Dr. P. A. Buxton of the London School of Hygiene and Tropical Medicine, and that of Professor of Pharmacology on Dr. J. H. Burn, director of the pharmacological laboratory of the Pharmaceutical Society.

A university post-graduate travelling studentship of the value of £275 for one year has been awarded to A. Gilpin, M.D. (King's College Hospital), whose research will be on the physiology and pathology of the thyroid gland and on problems specially related to sporadic goitre and thyrotoxicosis, to be carried on in Freiburg and Vienna.

The university studentship in physiology, of the value of £100, has been awarded to H. A. Dunlop, M.D. (Westminster Hospital), who will carry on physiological research at King's College.

UNIVERSITY OF BIRMINGHAM

The Walter Myers travelling studentship has been awarded to E. J. Kerr, M.B., Ch.B., who will carry out research in Vienna.

Dr. O. Brenner has been appointed assistant in forensic medicine and toxicology, and Dr. A. V. Neale part-time demonstrator in practical pathology.

UNIVERSITY OF LEEDS

Professor Harold Collinson, C.B., C.M.G., D.S.O., M.B., M.S., F.R.C.S., has been elected to the chair of surgery, carrying the headship of the Department of Surgery, as from the beginning of next session, in succession to Professor Dobson.

Mr. A. Richardson, M.B., B.S., F.R.C.S., has been elected to the chair of clinical surgery as from October 1st.

Mr. E. R. Flint, M.B., Ch.B., F.R.C.S., has been appointed Director of Surgical Research in succession to Mr. Braithwaite.

Dr. S. J. Hartfall has been appointed honorary demonstrator in medical pathology.

UNIVERSITY OF GLASGOW

At the graduation ceremony on June 21st the following degrees were conferred:

LL.D. (HONORARY).—Professor William Blair-Bell, M.D., F.R.C.S., Past President of the British College of Obstetricians and Gynaecologists.

D.Sc.—Amy M. Fleming, M.D., Ch.B.

M.D.—Mary A. Griffin and D. R. MacCalman (with high commendation); J. Grant and A. W. Russell (with commendation); J. W. M. Alexander and F. W. Martin.

UNIVERSITY OF WALES

The Council of the Welsh National School of Medicine has made the following appointments, to date from October 1st, 1933: *Mansel Talbot Professor of Preventive Medicine*, R. M. F. Picken, M.B., Ch.B., B.Sc., D.P.H.; *Independent Lecturer in Materia Medica and Pharmacology*, R. St. A. Heathcote, M.D., Ch.B., D.Sc.

Medical News

H.R.H. the Princess Royal will lay the foundation stone of the Nurses' Home of the Hospital for Sick Children, Great Ormond Street, on Friday, July 7th, at 4 p.m. This ceremony marks the first stage in the reconstruction of the hospital.

The new children's wards and *x*-ray and electro-therapeutic departments of the Central Middlesex County Hospital at Willesden are being opened by Sir George Newman to-day (Friday, June 30th) at 3 p.m.

The fifty-first anniversary dinner of the West London Medico-Chirurgical Society will be held at the Trocadero, Piccadilly Circus, on Thursday, July 6th, at 7.30 for 8 p.m. The honorary secretary is Dr. W. S. C. Copeman, 15, Harley Street, W.1.

An address entitled "Medical Impressions of Soviet Russia" will be given by Sir James Purves-Stewart before the Paddington Medical Society at the Great Western Royal Hotel, Paddington Station, on July 11th, at 9 p.m.

The twenty-first anniversary of the coming into effect of the payment of contributions under national health insurance is to be celebrated on July 17th, when a luncheon will be held in the Hotel Victoria, Northumberland Avenue. Sir Hilton Young, Minister of Health, will be in the chair, and the principal guest will be Mr. Lloyd George. Representatives of the British Medical Association will be present. The actual day on which the national health insurance scheme began to operate was July 15th, 1912.

During the annual meeting of the Society of Chemical Industry in Armstrong College, Newcastle-upon-Tyne, there will be a general discussion on July 13th, at 10 a.m., on "How Science can Help the Nation to Produce More of Its Own Food," introduced by Dr. H. D. Kay and Mr. H. J. Page.

The next meeting of the Society for the Study of Inebriety will be held in the rooms of the Medical Society of London, 11, Chandos Street, W., on Tuesday, July 11th, at 4 p.m., when Dr. J. D. Rolleston will read a paper on alcoholism in mediaeval England. Each member and associate may introduce visitors. Tea and coffee at 3.45 p.m.

The fourteenth annual lecture conference of the Industrial Welfare Society will be held in the Wills Hall, Bristol, from July 7th to 11th. The programme includes lectures by Dr. J. L. Hammond, "The Historical Background"; Dr. Louis Segal, "Some Aspects of Welfare Work in Soviet Russia"; Mr. John Grierson, "Films in Industry"; M. Henri de Man, "Joy in Work"; The Hon. Mary Pickford, M.P., "Welfare Development in Industry"; and Mr. Elton Mayo, "Industry and Social Change." On July 10th and 11th visits will be paid to works in the neighbourhood.

The King Edward's Hospital Fund for London has made arrangements for tours of historic buildings of London under the guidance of distinguished experts. The following places will be visited: the Houses of Parliament (July 5th, 11 a.m.); Westminster Abbey (July 13th, 3 p.m.); India Office (July 22nd, 2.30 p.m.); Somerset House (July 25th, 2.30 p.m.). Tickets (7s. 6d. for each tour) can be obtained from the secretary, King Edward's Hospital Fund for London, 10, Old Jewry, E.C.2.

A week-end course in general medicine and surgery, arranged by the Fellowship of Medicine, will be held at the General Hospital, Southend-on-Sea, on July 8th and 9th. On July 7th, at 5 p.m., there will be an ante-natal demonstration at the Royal Free Hospital; on July 13th, at 4 p.m., a demonstration of *x*-ray films at 11, Chandos Street, W., and a course in proctology at St. Mark's Hospital, from July 3rd to 8th. Forthcoming courses include dermatology at the Blackfriars Skin Hospital, and practical pathology at the Brompton Hospital, July 10th to 22nd; ophthalmology at the Royal Westminster Ophthalmic Hospital, and urology at All Saints' Hospital, July 10th to 29th.

The twelfth annual conference of cremation authorities will be held in conjunction with the annual conference of the National Association of Cemetery and Crematoria Superintendents in London on July 10th, 11th, and 13th. A cordial invitation is extended to those who are interested in the question of disposal of the dead by earth burial or cremation. The opening meeting will be held in the Council Chamber at the Guildhall, with the Lord Mayor in the chair.

The French Orthopaedic Society has organized a congress to be held in Paris on July 17th and 18th, when demonstrations will be held in various hospitals, and be followed by a visit to Berck-sur-mer and London.

The final programme has now been issued for the sixth English-speaking conference on maternity and child welfare to be held under the presidency of Sir George Newman in the Friends House, Euston Road, N.W., on July 5th, 6th, and 7th. In conjunction with the conference a short clinical course for medical practitioners has been arranged for July 3rd and 4th, on behalf of the National Council for Maternity and Child Welfare and some of its constituent bodies, by the National Association for the Prevention of Infant Mortality in co-operation with the Maternity and Child Welfare Group of the Society of Medical Officers of Health. Those wishing to join the course should write at once to Dr. C. Isobel Wright, 121–131, Rosebery Avenue, E.C.

The thirty-eighth French Congress of Alienists and Neurologists will be held at Lyons, under the presidency of Dr. Lagriffe, from July 16th to the 22nd, when the following subjects will be discussed: the influence of psychological theories on psychiatric evolution, introduced by Dr. Répond; and tumours of the third ventricle, introduced by Dr. Desruelles.

The French Society of Restorative, Plastic, and Aesthetic Surgery adopted at its recent annual meeting a resolution condemning publications of all kinds on this subject emanating from medical practitioners and others whose scientific qualifications were inadequate. A warning was issued against consultations with unqualified and unscrupulous charlatans. This branch of surgery was defined as one which necessitated special knowledge and technical ability, and it was held that the publication of articles was only advisable after the subject-matter had been fully and freely discussed by those experienced and qualified to judge. Without such careful precautions there was danger that a young and fruitful science might be seriously hampered in its healthy development.

In aid of the funds of the college mission at Lambeth, members of Epsom College will present Massinger's *A New Way to Pay Old Debts* at the college on July 19th, and at the Mission Institute in Lambeth Road on July 21st. Tickets (5s., 3s., and 2s.) for either performance may be obtained from the secretary to the Mission Committee, Epsom College, Surrey.

Professor H. G. Greenish, dean of the School of Pharmacy and professor of pharmaceutics in the University of London, is retiring at the end of the present term. He joined the teaching staff of the school in 1890, and was appointed dean in 1914. He was joint editor (with Sir Nestor Tirard) for the 1914 edition of the *British Pharmacopoeia*, and was a member of the Commission responsible for the production of the last (1932) edition. Dr. J. H. Burn, for the past six years director of the pharmacological laboratories of the Pharmaceutical Society, has been appointed dean.

Dr. Pierre Lereboullet, professor of infantile hygiene in the Paris Faculty of Medicine, has been elected an ordinary member of the Académie de Médecine, and Dr. William Mayo of Rochester and Dr. Thorwald Madsen of Copenhagen foreign associate members.

The Secretary of State for Scotland has appointed Dr. A. G. W. Thomson to be a Deputy Commissioner of the General Board of Control for Scotland, vice Dr. G. H. Rae Gibson, deceased.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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The address of the Irish Office of the British Medical Association is **18**, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, **7**, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Acute Iodism

"H. J. K." writes: The following personal experience of an asthma-like attack following painting of iodine on the skin may, I think, prove of some interest, and I shall be glad to hear of any similar experiences. A short time ago I suffered from an abscess of the forearm (unopened at that time), which was soaked in a hot iodine bath for three-quarters of an hour (strength of iodine, 1 oz. of 2.5 per cent. to half a gallon of water). A few seconds after removing the arm from the bath the area all around the abscess became intensely inflamed and covered with white, raised wheals with red margins (resembling recent flea bites); these gradually subsided during the next half-hour. Three hours later I felt increasing dyspnoea and tightness of the chest, and expiration became very wheezy and difficult. After a time expiratory wheeze became very harsh, and an intense feeling of suffocation was present; a little sticky sputum was expectorated, giving slight relief. The attack subsided after three to four hours. I have never suffered from hay fever or asthma at any other time, but have always noticed some undue sensitivity to iodine.

Alopecia Areata

Dr. J. F. BRISCOE (Newcastle-on-Tyne) writes: I believe, provided the bulbs of the hair are not destroyed, that the application of radiant heat once or twice a week for a short sitting, and then gentle massage may be of use. Castor oil is a good liniment to use with the shampooing. As a tonic I would recommend one of the iron preparations. Butcher's meat should be eaten very sparingly, and a tumbler of warm milk taken night and morning with 1 grain of calomel at bedtime. The bowels must be carefully attended to and alcohol avoided.

"R. M. R." writes in reply to "A. A. H." concerning the treatment of alopecia areata: Here is a prescription I found most successful: Acid. lactic, ʒj to ʒj; ol. ricini, ɱij; spir. vin. rect., ad ʒiv; to be painted on the bald patches once a day. My case was a young man with dark hair. After three months' treatment new growths appeared, at first fair, later dark.

Local Rating

Premises used Professionally

"L." (Essex) owns a house in which two-thirds of the rooms are used for professional purposes. He considers £50 would be a fair rent. Should the figure be increased because of the professional use of the premises?

⁂ The amount of the gross estimated rental (which forms the gross figure from which the rateable value is derived by the usual deduction for cost of maintenance) should be the amount of the rent which a hypothetical tenant could reasonably be expected to give. If the situation of the property be such that it could command a rent higher than usually given for similar private accommodation because of its business or professional possibilities, then the local authorities may properly take that element into account in estimating the hypothetical tenant's offer.

Income Tax

Life Assurance Allowance

"J. A. W." is being asked to refund an allowance made to him for the year following the maturity of the policy, and has protested that that is unfair seeing that he never received an allowance for the first premium, as the policy was taken out after his return for the first year was made.

⁂ The allowance is due in respect of payments made in the year of assessment, and, consequently, if the return has been made for the year in which the policy is taken out, a supplementary insurance claim should be made and the policy produced in proof of payment of the premium. As "J. A. W." remarks, that is a point which may not be generally understood. It follows that no allowance is due for the year following the year in which the last premium payment is made.

LETTERS, NOTES, ETC.

Herpes and Varicella

Dr. H. W. HAY (Westerham, Kent) writes: I note with interest Dr. Holloway's case of simultaneous herpes zoster and varicella in which the varicella followed the herpes after seven days (June 10th, p. 1032). Last month I had a case of a man, aged 38, with extensive almost confluent shingles over the right second lumbar sensory area. Three days later the temperature rose and varicella of medium severity developed. Recovery has been normal.

"The Naive and Sardonic Eye"

Dr. HALLIDAY SUTHERLAND (London, W.8) writes: As the subject whose eyesight and insight were thoroughly investigated by the reviewer of *The Arches of the Years* in the *Journal* of June 3rd (p. 965), I would like to thank your reviewer, whose identity is unknown to me, for his most generous criticism both of the book and of myself. In a witty letter, most appropriately written from Paris, Dr. Claude Lillingston takes your reviewer to task in the *Journal* of June 17th for his discovery of "the naïve and sardonic eye." Surely Dr. Lillingston has forgotten the "mind's eye," which in all of us is capable of radiating these, and many other, moods—almost simultaneously.

Toby Venner and his "Via Recta"

Dr. F. WILLIAM COCK, F.S.A. (Appledore, Kent), writes: Some time ago I sent you a note on this. On looking again at my copy, Ed: 1650, I find that Thomas Lambards has noted its cost "2' *prtm*," that is, price two shillings. I have also obtained Richardson's facsimile of the portrait. This occurs fairly often in printseller's catalogues. The original is distinctly rare.

A Warning

We are informed that a doctor in London placed some outstanding accounts in the hands of a firm of debt collectors whose headquarters were in Edinburgh. Having some doubts about the fidelity of the firm he called at the address in Edinburgh, and found the office closed. He then went to the police headquarters, where he was informed that proceedings were being taken against the proprietors, who had appropriated all the funds they had collected. He identified the photograph of the agent who had canvassed the London district, and was told that this man specialized in obtaining accounts from doctors and dentists.

Autocheques Ltd., 33, Regent Street, S.W.1, have issued a pamphlet describing the services offered by them to those desirous of taking a motoring holiday on the Continent. Books of vouchers are supplied which simplify considerably disbursement for Channel transport, accommodation, meals, tipping, etc., and enable the traveller to estimate beforehand the cost of his holiday. The vouchers are accepted in lieu of cash at hotels (totalling several thousands) in ten European countries. Information is obtainable at the address given above.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *15*.

An Address

ON

THE TREATMENT OF ALLERGIC DISEASES IN GENERAL PRACTICE*

BY

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(Working with a grant from the Asthma Research Council)

An individual is said to be " allergic " when he manifests an exaggerated susceptibility to substances innocuous to normal persons in the amounts commonly encountered. This hypersensitiveness or " allergy " on the part of the sufferer to many usually harmless articles commonly contained in his diet or environment manifests itself in such numerous and apparently diverse conditions as asthma, hay fever, eczema, urticaria, and migraine, as well as in an ever-increasing host of minor affections.

At first it was thought that only protein substances could act as " allergens " or originators of these reactions, but recent observations have shown that many non-protein factors, such as carbohydrates, drugs, and even physical agents, can lead to identical reactions. When we analyse these allergic responses we find that they usually originate in one of two ways, either as a definite inheritance of the predisposition to manifest a specific hypersensitiveness of some type to some substance, or acquired as the result of tissue damage or excessive irritation. During childhood the chief aetiologic factor is the hereditary tendency, which can be demonstrated in from half to two-thirds of all cases ; but in the majority of adults post-natal factors have been particularly severe and constant—for example, the continual association with a particular allergen either by occupation or by environment, combined possibly with extensive tissue trauma. Such a mode is exemplified in cases in which asthma has followed such lung damage as pneumonic processes complicating infections, in which a succeeding sensitization occurs to feather pillows or horsehair bedding on which the patient has lain during the illness, or in cases in which paroxysmal rhinorrhoea follows some nasal infection upon which a sensitization to dust, animal emanation, or face powder later develops. Such a division of cases, if possible, into primary (or hereditary) and secondary (acquired, or post-traumatic) is of great importance in determining the causative allergen, as the latter group is practically always inhalant or occupational in nature. For this reason a thorough history of the time and mode of onset is essential.

Allergic diseases have several characteristics in common. They are essentially periodic in nature, with apparent intervals of complete freedom. Symptoms generally have their onset during the night, or are most distressing during those hours. They have their maximum age at onset during childhood or adolescence—with the exception of hay fever—and each manifestation appears to have definite sex and seasonal variations. Besides the common history of allergic complaints obtainable in relatives or offspring, the patients usually give an account of some other allergic manifestation in their present or previous history. Finally, allergic diseases are greatly affected by varied states of health of the sufferer, and especially by indigestion, menstruation, and pregnancy ; by intercurrent disease such as fevers, exanthemata, or following operations ; by emotion, excitement, or exhaustion ; or by a change of climate, locality, altitude, or environment.

Their treatment involves a very definite routine, so that reliance on one therapeutic agent for all cases, irrespective of their aetiology, or the " shot-gun principle " of an assemblage of many in the hope that one will hit the mark, is to be deprecated. Again, the treatment sought from the specialist differs from that sought from the general practitioner, for whereas the latter is commonly called from his slumbers to relieve each acute exacerbation, the former is generally consulted during periods of relative freedom as to the means of preventing further relapses. I hope to show how the general practitioner can combine both functions.

* Read before the Leicester Medical Society.

ASTHMA

In the treatment of asthma, as in all allergic diseases, the first essential is to determine the cause. Often this will be indicated if a careful history is taken, but in other cases no clue is afforded, and skin tests, or the use of elimination diets, are advisable. But for the general practitioner skin tests are not practicable owing to their cost, the question of which to use, the number necessary, the technique required, and, in general, the impotency and worthlessness of proprietary preparations.

It is easier for the practitioner to make sure that the sufferer avoids the common agents that lead to attacks, which are either of an inhaled or ingested nature. The inhalants are the more common cause of allergic reactions at all ages except infancy, when foods predominate, and include feather, down, and horsehair pillows and bedding, animal pets, house dust, and orris root, the basis of all common cosmetics and toilet preparations. To remove these irritants the patient's pillow, mattress, bolster, and eiderdown should be filled with the best Java kapok, which can be obtained from the Witney Blanket Co. of Witney, Oxon. Animal pets should be kept out of the house, and always away from the sufferer, and children should not have toys stuffed with animal hair. House dust is difficult to eradicate ; the bedroom should be well ventilated, with a minimum of ledges, carpets, curtains, and other dust-holding surfaces ; the furniture should be scanty, and of the plain wooden type rather than upholstered ; cleaning should be done with some electrical suction apparatus in preference to the common methods of dusting, which disperse the dust through the atmosphere ; and, if cloths must be used, they should be damp, so that the dust can adhere, and the process should be carried out at times when the asthmatic is away from the house. Orris-root-free cosmetics may be obtained from Messrs. Boutalls, Ltd., chemists, 150, Southampton Row, London, W.C.1.

Dietetic Principles

If skin tests are not available to determine causative foods the simplest procedure for the practitioner to adopt is the prescription of a diet which is free from the common causes of asthma. In such a diet wheat, barley, and oats should be avoided as much as possible, and the remaining cereals should be employed after heating, puffing, or toasting. It should exclude egg and foods containing egg—especially egg-white. In many cases egg-yolk, if freed from white, can be used. It should avoid cow's milk in its natural state. The lactalbumin is commonly the part that leads to the reactions, and, as it is heat-coagulable, if the milk is well boiled, cooled, and the coagulated scum which forms removed, it can frequently be tolerated. Allergilac (Cow and Gate, Ltd.) is a lact-albumin-freed, half-cream, acidified dried milk that is applicable in cases of milk sensitivity. Condensed and evaporated milks can be used at times, as they have been modified to some extent by prolonged exposure to heat. Vegetable " milks," as can be made from soya bean flour, are useful at times. The diet should avoid beef, and especially pork, ham, bacon, and lard. It should also avoid many other less common foods that do not agree

with asthmatics, such as shellfish, nuts, cocoa and chocolate, fruits, such as fresh strawberries, apple, and banana, and vegetables, such as beans and peas, potatoes, and tomatoes, cabbage, and celery. Such a basic diet for an asthmatic child is set out below, and it is easy to modify it for an asthmatic adult. The patient is placed on the diet until free from symptoms, then one of the excluded foods is added each few days until symptoms recur, when generally the latest addition is the causative food. But this does not mean that it is the sole food, for patients are generally multi-sensitive, so that the process must be continued until all the excluded foods are reintroduced except those that lead to reactions.

BASIC DIET FOR AN ASTHMATIC CHILD

Breakfast

Vitamins.—Some concentrated preparation as adexolin, ostelin, or radiostoleum. Orange juice, grape fruit.

Cereal.—This should be made with water, covered with prunes or other cooked fruits and their juice, and sweetened. The following are advised in this order of preference: tapioca, sago, arrowroot, rice (boiled, puffed, toasted flakes, or "crispies"), rye (crisps or toasted flakes), corn (flakes or "post-toasties").

In place of wheaten bread—ryvita crispbread, oatmeal biscuits, or very thin crisp toast. Buttered when cold, and covered with honey, treacle, or syrup.

Beverage.—Allergilac (Cow and Gate, Ltd.), or a small cup of warm, weak tea, with a small teaspoonful of condensed or evaporated milk.

Dinner

Soup.—A small quantity of clear, sieved bone and vegetable soup.

Meat.—Lamb chop, grilled or stewed, or roast lamb. Brains. Chicken or other poultry. Occasionally steamed or boiled fish.

Vegetables.—Sweet potato, turnip, carrot, sprouts, soya beans, squash, artichoke.

Salad.—Beetroot, lettuce, watercress, or asparagus tips covered with olive oil or lemon juice.

Sweets.—Baked or stewed pears, peaches, or apricots. Custard made from powder, not egg. Fruit jellies. Tapioca or other pudding, cooked with water, not milk. Dates or dried figs, soaked in water for forty-eight hours.

Tea

Soup.—Bone and vegetable or other clear soup.

Cereal.—Ryvita, oatmeal biscuits, or crisp toast, with butter or margarine and honey or seedless jam.

Sweet.—Stewed fruit or fruit jelly, or other simple dish prepared with gelatin.

Beverage.—Allergilac. Tea with condensed or evaporated milk.

Other Measures

Besides the avoidance or removal of common specific causes there are several contributory factors that need our attention. The sufferer should not be confined to bed except in the presence of fever, or progressive loss of weight), for confinement to house or bedrooms tends to prolong attacks. Asthmatics should always be allowed up and about when the weather is fine. A warm or tepid morning bath should be followed by a cold sponge and a brisk rubbing with a rough towel; hot evening baths commonly provoke attacks. In avoiding constipation drastic purgatives are not advisable, especially the common "once or twice a week" kind, which are usually taken overnight; an early morning saline, or glass of fruit juice, is preferable. Among poorer children the hot bath and dose of syrup of figs on a Friday night are the commonest causes of week-end asthma.

In addition to the avoidance of specific foods to which the patient is hypersensitive, the diet of the asthmatic patient should be regulated according to such complicating conditions as gastric anacidity, flatulence, and over- or under-feeding. Gastric or rectal distension commonly precipitates an attack, so should be avoided. Flatulent dyspepsia and chronic gastritis are common, and may be alleviated by ensuring thorough mastication, by gastric lavage each morning with a dilute solution of hydrogen peroxide, or by administering dilute hydrochloric acid by the mouth—one or two aklorep tablets, placed on the tongue and swallowed with a little water, immediately before meals (made by Roberts and Co., 76, New Bond Street, W.1). Three small, easily digested, simply compounded meals a day are best—a good early breakfast, a substantial hot midday meal, and a light early supper several hours before retiring should be the rule. Late meals, heavy meals, bulky diets, or mixed cooking should be avoided. No food or drink should be taken after supper, and especially not just before or after getting into bed.

Reflex irritation may precipitate asthmatic attacks, so that foci of infection should be removed. With regard to nasal abnormalities, it is essential to realize that they are commonly the result of allergic reactions, and rarely a primary cause. It is pitiful to hear of the number of useless operations that many asthmatics have had on their noses. Whilst infected tissues should be removed or drained, boggy tissues will usually subside following therapy based on allergic principles. It should be remembered that a function of the turbinals is to warm and moisten the inspired air, so that after their removal asthmatics are particularly prone to attacks from breathing cold air, and we are at a loss to help them further. Though occasionally asthmatics show evidence of endocrine dysfunction statistics bear out the fact that such dysfunction is rarely the primary cause of the asthma. In asthma commencing at the menopause thyroid and ovarian substance are frequently beneficial adjuvants. The common mental states that precipitate attacks of asthma are emotion, exertion, and excitement, so that these should be guarded against. Fussing and over-anxiety should be avoided, and attempts made to divert the sufferer's attention into other channels. Other less common psychic factors include grief, fear, mental depression, sex conflict, or worry.

The majority of asthmatics look forward with some apprehension to the night, and often when changing from a warm sitting-room to a cold bedroom an irritating cough is initiated. It is therefore advisable to give a sedative in the form of a strong linctus at bedtime each night. For children I order:

Compound tincture of camphor ...	20 minims
Tincture of stramonium	5 minims
Pure dextrose	30 grains
Oxymel of squill	15 minims
Chloroform water	to 2 drachms

At bedtime.

To adults I give:

Tincture of stramonium	15 minims
Syrup of Virginian prune... ...	to 2 drachms
Syrup of codeine phosphate ...	

Early morning breathing exercises, especially of a counting, humming, or hissing type, are very beneficial if not continued up to the point of fatigue. They teach the sufferer to concentrate on breathing out rather than breathing in; they train the diaphragm and abdominal muscles to contract properly and harmoniously; and they counteract the tendency to chest deformity. Slow walking in the open air, at first on the flat and later on mild hills also assists. As regards climate, the sufferer should be shielded from extremes of temperature, draughts, cold winds, and fog. From experience it has been found that the east and south-eastern coasts are generally bad for sufferers as places of dwelling, or for convalescence or holidaying. The south and south-western coasts are preferable.

Desensitization and Drugs

If after this detailed routine has been carried out for a few months the patient has failed to improve appreciably then desensitization should be attempted. When employed it should be specific—that is, against the causative allergens—if possible. As these are most commonly inhalant, a mixture of the common feathers, hairs, dusts, and orris root is more likely to meet with success than is a shot in the dark, such as the use of a non-specific agent entails. In practice, both in adults and in children, I use this inhalant mixture solely and in very concentrated dosage. Among the non-specific agents Witte's No. 30 peptone is probably the best. Autohaemotherapy is successful occasionally. Tuberculin, milk, and vaccines are in general a waste of time and money. Physico-therapeutic methods, such as electrotherapy (diathermy), actinotherapy (ultra-violet and infra-red rays), and *x*-ray therapy should only be employed in rare cases where clinical and radiographic signs justify their use. Among the drugs ephedrine is widely used, and frequently lessens the severity of attacks, but never cures or entirely prevents them. Aspirin wards off attacks in some cases, but in others precipitates them. Glucose helps some cases. Calcium is of no value; many patients have idiosyncrasies to iodides.

SEASONAL HAY FEVER

In England the pollen cloud abounds from the end of May until the end of July, and corresponds principally with the period of pollination of the grasses. In contrast with other parts of the world trees and weeds are relatively unimportant factors. Flowers and cereals are often incriminated as causing symptoms, but the former are insect- not wind-pollinated, and the latter produce such large, heavy, sticky granules that they cannot be carried far by the wind. Hence, flowers and cereals can only be a cause of symptoms when the susceptible person is brought into contact with them either by occupation, in the adornment of the home, or by direct inhalation, as in actually smelling the flowers. The successful treatment of seasonal hay fever depends rather upon the recognition of all possible allergic causes than upon the detection of infections or structural alterations in the nose. No doubt the existence of the latter tends to accentuate hay fever symptoms when present, but if all the specific causes are recognized, and measures taken to render them void, the patient should be just as immune to symptoms in the summer as he is in the winter. In the absence of surgical intervention it is remarkable that patients can suffer from hay fever symptoms for many years without infection developing. The specific causes of hay fever include not only the pollens of the locality but also feather pillows, house dust, animal hairs, and orris root cosmetics. If the patient is sensitive to these latter inhalants their removal or substitution is essential, or desensitization necessary; and it is the recognition and removal of these other inhalant sensitizations that frequently makes the difference between a failure and a successful treatment.

The solutions of the common British pollens for testing and treatment may be obtained from Messrs. Duncan, Flockhart and Co. of 155, Farringdon Road, London, E.C.1. Skin tests are carried out with the common pollens of the district, and the solution for treatment should contain all the pollens to which the patient reacts. In the British Isles they are practically only grasses, though in special cases isolated reactions occur to trees and weeds. The most frequent reactions amongst the grasses occur to Yorkshire fog (*Holcus lanatus*), the meadow grasses (*Poa annua, pratensis,* and *trivialis*), the fescues (*Festuca ovina* and *elatior*), and to Timothy grass (*Phleum pratense*). For those that cannot afford the time and expense of a prolonged change of environment in order to avoid the pollens to which they are sensitive, desensitization is a necessary therapeutic measure. Once symptoms have commenced one is forced to undertake co-seasonal treatment, and a satisfactory course can be put through by giving injections of increasing doses of pollen solution each two hours from 8 a.m. to 8 p.m. In known cases the pre-seasonal method is that usually adopted, the course of injections commencing about the beginning of March and continuing weekly until the beginning of June. Once the maximum dosage has been reached it is often advantageous to continue the treatment perennially. In such a case one injection of the maximum dose reached at the end of the season is continued each month, and the patient is kept permanently immune for about three years, by which time all sensitivity is frequently lost. The injections may be continued over a period of years without leading to any functional or organic disturbances. Two-thirds of the cases derive great benefit immediately from the treatment, provided that it is carried out with thoroughness. The common causes of failure include: incorrect diagnosis; improper treatment, due to impotent extracts, insufficient injections, or inadequate dosage; failure to recognize multiple sensitizations to factors other than pollens; and seasonal variations in the pollen crop, leading to an extreme abundance of pollen at a given time.

Besides the preventive measures outlined there are many palliative measures that bring great relief to sufferers during the season. The eyes can be relieved by the wearing of dark glasses, which cut out the glare and diminish the amount of pollen coming into contact with the conjunctival mucous membrane. The itching and burning of the conjunctival and nasal mucous membranes can be relieved by the following ointment:

Benzocaine	1 drachm
Ephedrine hydrochloride	10 grains
Sol. adrenaline hydrochloride *B.P.*	1 drachm
Soft white paraffin	to 2 ounces

or by the use of anesthone cream (Parke, Davis and Co.).

Internally, ephedrine hydrochloride in doses of half to three-quarters of a grain orally, night and morning, is often sufficient to control the spasms, but in acute exacerbations the hypodermic injection of adrenaline solution is often necessary. Hydrochloric acid has a beneficial effect if given internally; this is best given in tablet form, one aklorep tablet three times a day immediately before meals. Inhalations of carbonic acid gas through a sparklet apparatus, as suggested by Hurst, frequently lead to an immediate cessation of nasal symptoms. Cauterization and ionization of the nose do not generally lead to any permanent benefit, though at times they are useful as palliative measures. Vaccines and non-specific therapy are again generally a waste of time and money.

PERENNIAL HAY FEVER

In many cases hay fever symptoms are present more or less all the year round, and are not restricted to the months of May, June, and July. In these cases symptoms are due to causes other than pollens. These include the common inhalants already described; such foods as wheat, egg, milk, chocolate, potato, and beans; drugs, of which aspirin is the commonest; and bacteria, though infection is the exception rather than the rule. Two additional factors, occupation and climate, play an extremely important part. Bakers develop symptoms from contact with cereal flours, though they are innocuous when taken in food form by mouth. Housewives are affected by house dust and moulds, feather and horsehair bedding, animal

emanations, and orris root toilet preparations. Chemists and doctors are affected by the powder of ipecacuanha and sodium salicylate. Rubber, shoe, and chemical workers are also frequent sufferers. A cold, changeable climate more often causes symptoms than a warm, equable one, and discomfort is more often experienced in the winter than in the summer, and especially on going from a warm room into a cold one. The treatment of perennial hay fever may be palliative or curative. The palliative treatment includes such intranasal applications as the inhalation of carbonic acid gas, the use of adrenaline, ephedrine, and cocaine nasal sprays and ointments, or the application of silver nitrate. Nasal cauterization and zinc ionization meet with occasional success, usually only temporary. Intranasal operations generally afford very little relief in the absence of sepsis. The curative treatment demands the active removal of sensitization factors, as determined by skin tests, or their passive avoidance by a change of climate or occupation. Desensitization is frequently necessary, and in inhalant sensitizations a mixture of feathers, hairs, dusts, and orris root offers the best chance of cure. If specific therapy cannot be applied one may employ the less beneficial injections of peptone or auto-serotherapy. Vaccines, either autogenous or stock, very rarely lead to any improvement.

INFANTILE ECZEMA

The treatment of infantile eczema may be discussed under two headings: the treatment of the local reaction, and the treatment of the cause.

The treatment of the local reaction depends upon the site of the lesion and upon the presence or absence of infection. The lesions are generally at different stages on the face, scalp, and body; some parts are infected, and others not. The first duty is to cleanse the surfaces, and for this purpose soap-and-water should never be used. For mild cases olive oil will suffice, but in the more severe ones a starch poultice will achieve the optimum effect. If, when the crusts have been removed, sepsis is still present, a yellow oxide of mercury paste such as the following is advisable:

Yellow mercuric oxide	15 grains
Starch, in powder	2 drachms
Zinc oxide	2 drachms
Soft paraffin	to 1 ounce

When the surface is aseptic the most useful preparations to apply are crude coal tar (1/2 drachm to the ounce) in the chronic lichenified type, and zinc paste if the surfaces are acutely inflamed and angry. If there is excessive lichenification of the skin the addition of salicylic acid (as in Lassar's paste) is advisable. Old dressings and crusts should always be removed with warm olive oil before applying new. Of equal importance with the cleansing of the surfaces and the application of medicaments is the placing of the child, as well as the part, at rest, and the prevention of scratching. A dose of nepenthe or chloral should be given at night, the face kept covered with a mask, and the elbows splinted.

The treatment of the cause involves in the first place its determination. In infantile eczema two factors are involved: the primary sensitization, and the secondary predisposing factors. As regards sensitization, most eczematous infants are sensitive to egg, whether they have ever partaken of it or not, probably due to a sensitization *in utero*. Other food sensitizations depend to a large extent upon the feeding of the child at the time. During the breast-feeding period, egg, milk, cocoa, wheat, or cottonseed may be factors, owing to the habit of pregnant and nursing mothers supplementing their diet with milk foods, ovaltine, cocoa, porridge, or lactagol. In such cases a careful history will frequently indicate the causative food. In the weaning stages milk protein becomes the chief offender, and in the majority of instances it is the lactalbumin fraction that is at fault. Fortunately, as already pointed out, this is a heat-coagulable protein, so that often a modified milk, such as condensed, evaporated, or acidified milk, can be used. As in cases of asthma, allergilac is very beneficial in milk-sensitive children. A similar milk can be prepared at home by boiling the milk for fifteen minutes, allowing it to cool, removing the scum, and acidifying by adding to each pint 40 minims of dilute hydrochloric acid (*B.P.*), drop by drop, whilst stirring. The requisite amount is just brought to blood heat for each feed. Children appear just as sensitive to goat's milk as to cow's. Vegetable "milk," such as may be made with soya bean flour, does not lead to such good results as the modified acidified milk. When the child commences on his baby diet such additional factors as wheat, oats, barley, bacon fat, orange, beef, potato, spinach, and corn arise. Finally, a large percentage do become, or are, sensitive to feather or horsehair bedding, so it is as well to see that the best Java kapok is installed in the cot, and animal pets and toys stuffed with hair are excluded.

Apart from these primary factors, and especially when the condition has lasted for any length of time, the skin gets into such a state that it appears to be irritated by numerous secondary non-specific, non-allergenic causes, which include (*a*) such external irritants as woollen garments, trauma, infection, mechanical irritation, chemicals (such as strong soap and various therapeutic applications), changes in temperature, and exposure to winds; and (*b*) such internal derangements as accompany teething and overfeeding. Each of these factors must therefore be considered and nullified as far as possible.

PAPULAR URTICARIA

Probably the commonest type of urticaria met with in general practice is the papular urticaria of childhood. It is extremely prevalent in England, forming at least 10 to 20 per cent. of all out-patient skin cases at children's hospitals. Very few children escape without having it in some degree. Everyone is familiar with the pea-sized red blotch that appears on the covered parts of the body, in the centre of which a minute papule or vesico-papule later develops. The wheal soon disappears, but the papule lasts several days or weeks, especially if excoriated as the result of the intense nocturnal itching. Practically all children develop lesions before the age of 5 years, and ordinarily the condition disappears before puberty, periods of quiescence being followed by relapses which are more or less confined to the warmer months of the year. Many theories have been expressed as to the aetiology. It has been thought to be a disorder associated with dentition ("gum rash"); an ill effect of vaccination; a disorder of digestion, associated with constipation, improper feeding, rickets, or the ingestion of certain acid fruits and sweets; a result of improper clothing, uncleanliness, or decomposition of sweat; a result of the bites of the flea, louse, or bed-bug; an association of worm infestations; and, finally, an allergic reaction to environment.

It is with trepidation that I suggest, as the result of studies in several hundred cases, a new aspect. In the majority of instances two factors are involved—one dietary, the other thermal. The dietary factor may be divided into two groups: (*a*) fats, especially bacon fat, which is a pronounced ingredient of a child's diet in this country; vegetable oils and fats, in Jewish children;

and cod-liver oil in a certain percentage of any nationality; and (*b*) common foods such as fish, egg, potato, oats, and chocolate in a small number of cases, as additional agents. Acid fruits and vegetables, though commonly incriminated, seem merely to aid the absorption of the nocuous fat. The thermal factor is also an important one, for the lesions generally appear only in the warmer months of the year, when the child is warm in bed at night, or following a hot bath, after exercise, or following any of the feverish ailments that are common in early childhood. The lesions cease to appear in the majority of cases when the fats outlined are removed from the diet, and when care is taken not to let the child get overheated. Though a rhubarb and soda mixture is commonly given I find a pepsin and hydrochloric acid mixture more beneficial. The lesions may be treated with naphthol ointment (1 per cent.) or 2 drachms of solution of coal tar to 8 ounces of calamine lotion. If the lesions are infected probably the yellow oxide of mercury ointment, outlined in the treatment of infantile eczema, is the best.

ENURESIS

As enuresis is a common accompaniment of papular urticaria and many allergic conditions, and has ceased when treatment has influenced these other conditions, I was led to investigate many cases of enuresis that had persisted in spite of dietary and fluid restrictions, lifting at definite hours, and large doses of belladonna, and in which no urinary abnormalities could be detected. Many of these cases have been found sensitive to common foods, especially pig products, as well as to feather and horse-hair bedding. The removal of these irritants, together with the administration of large doses of ephedrine by mouth, such as 1/2 grain at the child's bedtime (repeated when the mother goes to bed) nightly for some months, rapidly cures the complaint. The sphincter-tightening effect of ephedrine on the bladder is well recognized among asthmatics. As soon as any toxic effects of the drug such as vomiting, tachycardia, insomnia, or stupor are experienced, the dose is halved.

MIGRAINE

Migraine, or sick headache, is extremely common in members of allergic families, and especially in the mothers of asthmatic children. Besides these hereditary associations there is abundant evidence in favour of many cases of migraine having an allergic basis. That allergic reactions can occur in the central nervous system is shown by the cerebral symptoms that frequently follow injections of therapeutic serums. In addition, many cases give positive skin reactions, and the headaches cease when the causative allergens are removed. In the attack the patient is forced to lie down, and the room should be darkened, and an ice cap applied to the head. The bowels should be well opened with magnesium or sodium sulphate. Probably one of the best drugs to relieve the headache is compral (Bayer and Co.), three tablets being given each six hours. Others favour bromide and chloral, sodium luminal, caffeine, and veramon. In the preventive treatment the first duty is to remove specific allergens. The commonest are foods, and include milk, wheat, eggs, pork, chocolate, nuts, peas, and beans. A few sufferers are sensitive to inhalants, such as feathers and animal hairs. Biochemical investigations have indicated that migrainous attacks are associated with a change in the blood toward the alkaline side, so that this should be combated with a ketogenic diet, with marked restriction of carbohydrates, and hydrochloric acid by mouth. In cases markedly affected by menstruation, organotherapy is indicated in addition, such as pituitary, ovarian, and thyroid preparations.

OTORRHOEA *

BY

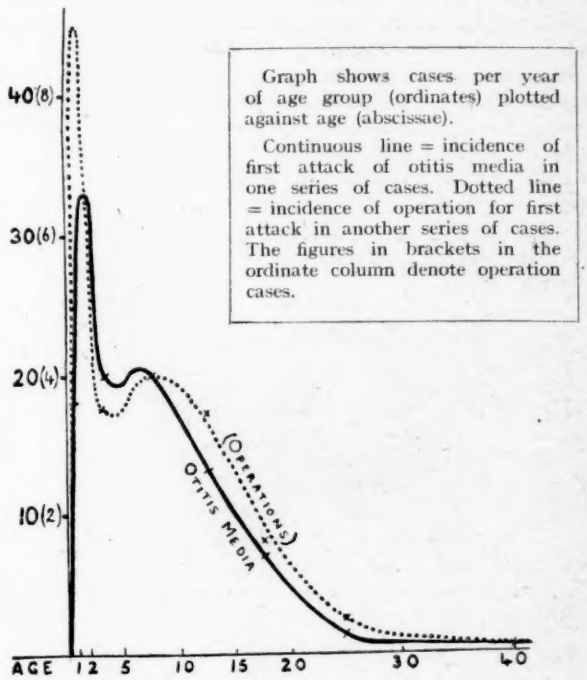
E. WATSON-WILLIAMS, *M.C.*, CH.M., F.R.C.S.ED.

SURGEON IN CHARGE, EAR, NOSE, AND THROAT DEPARTMENT, BRISTOL ROYAL INFIRMARY

Suppurative otitis media† begins in early life. Except as a complication of severe influenza, a first attack in adult life is uncommon. The importance of the very early years is brought out in the following table of ages of first attack in a consecutive series of cases. As a check on the "sample," it is only necessary to compare the corresponding figures for a quite distinct series of patients

Age Incidence of Otitis Media

Age	First Attack of Otitis Media		Operation for First Attack	
	Cases	Cases per Year of Age Group	Cases	Cases per Year of Age Group
0–1	18	18.0	9	9.0
1–2	33	33.0	14	3.5
2–5	60	20.0		
5–10	101	20.0	20	4.0
10–15	65	13.0	17	3.4
15–20	35	7.0	8	1.6
20–30	14	1.4	5	0.5
Over 30	13	0.4	3	0.1



Graph shows cases per year of age group (ordinates) plotted against age (abscissae).

Continuous line = incidence of first attack of otitis media in one series of cases. Dotted line = incidence of operation for first attack in another series of cases. The figures in brackets in the ordinate column denote operation cases.

for whom a mastoid operation was performed during a first attack of otitis[1]: the incidence was much greater during the *first* year than at any subsequent period, and in my experience this is constant. In neither series was there an abnormal proportion of influenzal otitis.

Two-thirds of first attacks of otitis occur between the ages of 3 and 14. Scarlet fever and measles, in conjunction with "adenoids," furnish the obvious explanation. But the incidence is as high during the first year of life,

* Delivered at a meeting of the Bath, Bristol, and Somerset Branch of the British Medical Association, January 25th, 1933.

† Throughout this paper *suppurative* otitis media is implied.

and much higher during the second ; and here such an explanation fails. A very common history is: "There was never any ear trouble before, except that his ears ran with every tooth he cut as a baby." And it must be conceded that the catarrhal reactions to teething, such as coryza, bronchitis, and diarrhoea, are the starting-point of a very considerable bulk of otitis media.

Why do children exhibit this catarrhal tendency and why do they develop adenoid hypertrophy? Repeated exogenous bacterial infection is cited in explanation, but it cannot be contended that this is convincing. Rather

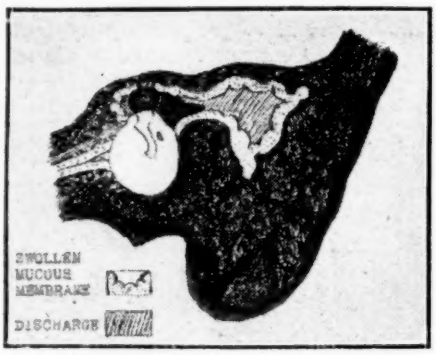


FIG. 1.—Vertical section of ear in plane of tympanum ; position of membrane indicated. Cancellous acellular ("infantile") type of mastoid. At birth there is no real "process," but bone arrangement is that here shown ; the antrum is higher, but as large as in adult life. Cell formation begins in second year, and is nearly complete by tenth. Occasionally this type of mastoid persists into adult life. Process smooth, cortex rather thin, interior cancellous, practically no cells.

are we disposed to inculpate a "constitutional" factor, and recent work strongly suggests that a relative hypovitaminosis is the real starting-point of these troubles. If this is so the prophylaxis of otitis—and therefore of the bulk of adult human deafness—lies in the hands of the physician during the earliest years of life. Admittedly, where chronic rhinitis or adenoid hypertrophy exists surgical treatment is generally necessary in addition to

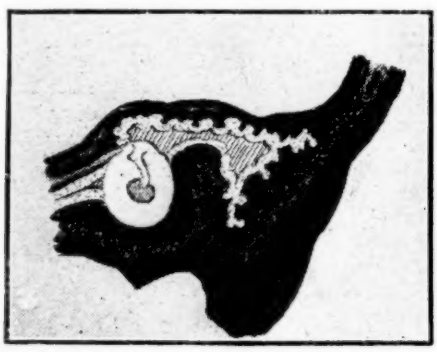


FIG. 2.—Similar section, incus and head of malleus removed. Sclerotic acellular type of mastoid (about 20 per cent. of adults). Process narrow, deeply grooved, concave above ; cortex thick and dense, little cancellous bone, cell development poor.

medical, and the results as regard otitis media are as a rule strikingly satisfactory. Here I should like to digress to say that in my experience the removal of tonsils seldom benefits otitis media.

TREATMENT OF THE DISCHARGING EAR

The purpose of the present communication is, however, to discuss, not the prophylaxis of otitis media or the treatment of the acute phase before rupture or paracentesis of the membrane—a measure the value of which is well recognized—but the treatment of the patient whose ear is actually discharging. It is assumed that adenoids, nasal infection, and constitutional conditions are receiving treatment. Two points require consideration. First, in most cases the whole, or nearly the whole, of the middle-ear cleft is infected from the outset: some parts may recover more rapidly than others. Secondly, of those patients who receive no treatment at all the great majority recover completely. No doubt these cases include few of the more severe infections, but the point must be kept in mind when discussing the merits of any method of treatment.

The perforation in the membrane in a chronic case may be as large as in Figs. 2 and 3, but in an acute case it

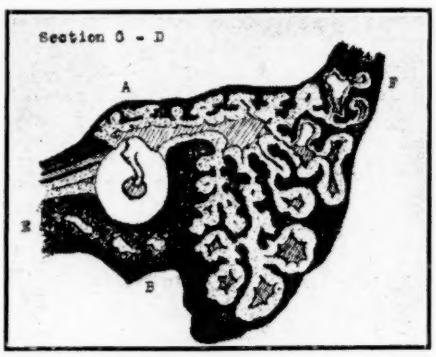


FIG. 3.—Section as Fig. 2. Common cellular type of mastoid. Process large and convex, cortex very thin, cancellous bone almost absent, cells numerous and complex (often less so than here shown). Note that the attic conforms to type of mastoid.

is more often minute, as in Fig. 1. The normally narrow slit of the tympanum is almost obliterated by swollen mucous membrane (Fig. 4), folds of which shut it off from the attic. This in turn is subdivided and nearly filled by the ossicles, their ligaments, and the reflections of mucous membrane which invest them (Figs. 4 and 5). The aditus is probably merely a potential channel during an acute infection, and beyond it lies the antrum with

FIG. 4.—Transverse section of same mastoid as Fig. 3, in nearly horizontal plane E–F. (F.R., foramen rotundum.)

its cells, generally numerous and complex, also lined with engorged mucous membrane, so that many are almost completely shut off even from the antrum (Figs. 3 and 4). The spaces that are left are filled with exudate, purulent for a day or two, but rapidly becoming glairy and mucinous. It is obvious that the scope of treatment via the meatus is strictly limited. The most we can hope to do is to promote natural drainage. We must carefully avoid anything which may increase congestion or the risk of additional infection, or which may damage the inflamed tissues, so that repair may be as rapid and complete as possible, with a minimum of scarring and damage to hearing—that is, essentially, damage about the oval and round windows (Fig. 4).

THE "WET" AND "DRY" METHODS

The closing years of last century saw a considerable controversy between two schools of teaching—the "wets" and the "drys." (Cf. *Lancet*, and *Laryngoscope*, 1899.) The "wets" had the advantages of tradition and of the more active treatment; they apparently retain a large body of adherents to this day. Syringing the ear with warm sterile saline is a tedious method of removing a viscid discharge, but unobjectionable: water, even when sterile, makes the skin sodden, and causes mucous congestion. Hydrogen peroxide alone or as an adjuvant to syringing acts mainly mechanically, its disinfectant effect being negligible. The bubbling exercises a mesmeric fascination over the lay mind. It is definitely irritant to mucous membrane, and causes many attacks of otitis externa. But the real disadvantage of these methods lies in the tendency to increase congestion, probably a more important matter than any risk of carrying infection into hitherto healthy areas. I have so often seen the need for immediate operation arise in cases, acute or chronic, directly following treatment on these lines, that I have long refused to countenance such for any patient with a perforated membrane.

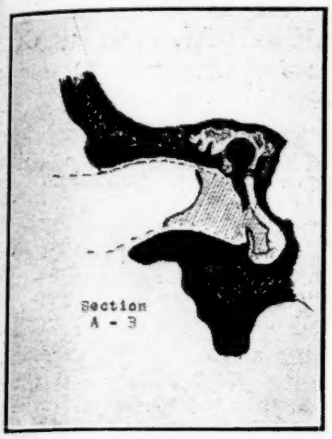


FIG. 5.—Vertical section across plane of tympanum, to show attic, Prussac's space, malleus, ligaments, etc.

Aqueous medicated "drops" are sometimes used, such as mercurochrome in 1 per cent. solution. This stains the membrane scarlet, and during the acute stage impedes observations on the progress of the disease. It is a powerful disinfectant, but the importance of disinfecting the meatus is possibly exaggerated, as the fundus is normally sterile. In the subacute stage mercurochrome often acts like a charm, though the chance of staining clothes and bedding is a nuisance. It should not be used for more than a fortnight since it is a definite tissue poison, and seems frequently to delay healing, which occurs when it is stopped. Another modern "wet" method is zinc "ionization." The ear is carefully cleansed and filled with 2 per cent. zinc sulphate solution. An anode of zinc wire is placed in the fluid and a current of 3 milliamperes applied for ten minutes: this may be omitted without influencing the result. The treatment depends really on cleansing and subsequent (chemical) surface coagulation. It is not recommended for acute cases; if applied to all "suitable" cases the results are as good as most, but very few which resist simpler treatment are cured by "ionization." The aura of mystery that surrounds all electrical treatment probably accounts for its vogue.

The "drys" treat the ear simply by inserting a loose pencil (not a plug) of sterile gauze or wool in the meatus, and changing it as often as it becomes soiled. The discharge is regarded as the best "dressing" for the inflamed mucosa. In the London County Council fever hospitals, where many hundreds of acute otitis cases are treated every year, the *only* local treatment is to wipe out the discharge at frequent intervals—a method which has been found to give results superior to any other. But in private or out-patient practice we want a method of treatment that does not depend on rigid asepsis and constant attention, and that can be applied by any moderately intelligent layman. Glycerin containing 2 per cent. phenol (the *B.P.* preparation is too caustic) used as hot as is comfortable has established its reputation as an "ear drop." It is excellent both before and after the onset of discharge, but it does not mix well with the latter, so that this must be carefully removed before use. The phenol is mildly analgesic: glycerin itself is a potent antiseptic, but its principal value is due to its hygroscopic action.

MAGNESIUM SULPHATE IN THE "DRY" TREATMENT

A hygroscopic application might be expected to promote drainage by reducing local congestion, and also to encourage a thinner and more watery discharge. It was with this object that I introduced magnesium sulphate as a dressing for the ear.[2] The essential of any "dry" treatment is thorough cleansing of the meatus, failing which applications lie inertly in the outer part, separated from the tympanum by a layer of discharge. It is worth a little trouble to learn, and to teach, how to make a suitable pencil of wool, for it is a pencil that is needed, not a spherical knob (Figs. 6 and 7). Take a thin, oblong piece of the best cotton-wool (no one can make a good mop with cheap fluff), about one inch by one and a half inches, and lay it on the left index finger. Place the end of the wool-carrier (a match or an orange stick) on it in line with the long axis, but projecting half an inch over the end (Fig. 8). With the left thumb fold the wool longitudinally round the carrier and, pressing thumb and finger together, rotate the carrier so that the wool becomes firmly attached to it. Maintain the pressure and rotation while the wool is withdrawn between finger and thumb, so as to form a uniformly thin cylinder; the free end is left fluffy, and not twisted into a point. Draw the ear out and a little back, and plunge the mop right down to the membrane and out again. If the discharge is sticky ten or twelve mops will be needed properly to cleanse the meatus. Half fill the meatus with powdered magnesium sulphate (crystals, *not* exsiccated), and cover it with a large piece of wool in the bowl of the concha. Where discharge is free, four-hourly treatment is needed, but in a day or two twice a day suffices.

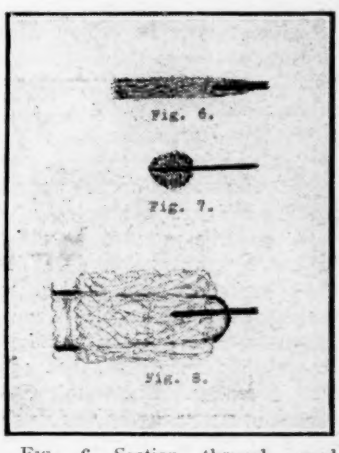


FIG. 6.—Section through good aural mop.
FIG. 7.—Section through bad aural mop.
FIG. 8.—Starting to make aural mop.

Since adopting this method two years ago the results, especially as regards hearing, have been so satisfactory that I now employ it as a routine. In chronic cases it is indicated wherever the discharge is free or gelatinous. But it is in acute and subacute cases that its value is best seen. During the recent influenza epidemic about half the cases of "acute mastoiditis" admitted to my wards for operation have recovered completely without this being required, and the method has been even more successful in private practice. As a rule the ear is dry in about three weeks, often less. If the hearing is not rapidly improving at this period it is a good plan to inflate the ear (with a Politzer bag) once or twice a week, though this is seldom necessary.

If the discharge has dwindled to a mere trace, but does not entirely cease, a more stimulating regime is desirable. Alcohol (90 per cent.) has long been employed. It is too painful for use during the acute stage, and many patients find it unpleasant even later. Iodoboric

powder* is satisfactory and well tolerated. It is used exactly as the magnesium sulphate, or applied by means of an insufflator, twice a week. One word of warning is needed. In adults with good hearing and old-standing, minimal, inoffensive discharge, it is sometimes best to rely on regular cleansing and not to attempt to obtain healing, since this may be achieved only at the expense of auditory function.

To treatment on these lines the response is usually rapid and satisfactory. Failure may be due to unsuspected nasal infection or to some general condition, such as debility, diabetes, syphilis, etc. Granulations ("polypi") must be removed before treatment can be effective: they are due occasionally to syphilis, but nearly always indicate osteitis. If, in a chronic case, the discharge continues offensive or frankly purulent despite six weeks of careful treatment, the cause is practically certain to be osteitis, as a rule with cholesteatoma. The question of operation should then be seriously considered. The risk of a grave complication, though not negligible, may be slight, but an enormous amount of chronic ill-health is directly due to persistent mastoid infection.[3] Almost invariably in these cases the acellular type of mastoid is found. On the other hand, one seldom has to operate for primary acute mastoiditis on persons (except infants) with acellular mastoids, probably because the aditus affords relatively good drainage for the small area beyond it. With material, old-standing deafness there is nearly always disease of the ossicles, and nothing short of the radical mastoid operation is effectual; but children show such great powers of recovery that the tympanum should be conserved unless manifestly seriously diseased.

In acute otitis media the need for operation may, of course, arise quite early, sometimes indeed before the onset of discharge. The general condition affords a better guide than local signs, pain, tenderness, or even oedema. Quite a number of "acute mastoids" recover completely without operation, though perhaps it is only after considerable experience that one can forecast the course of any given case. In influenzal otitis, when there is considerable deafness, the question of operation assumes early importance—I have seen irreparable damage to hearing within ten days of onset—but if four weeks from the start of any acute otitis the ear has not healed, or at least is not quite definitely healing, the decision as to operation must by no means be postponed. It is true that children often recover good hearing after many months of otorrhoea, but the proportion falls steadily month by month, and much more rapidly in adults. If the opposite ear is deaf there is an additional reason for urging early operation in the acute case. A week never passes but I see patients whose hearing has been sacrificed by a refusal promptly to recognize that meatal treatment is not in fact succeeding. The simple (Schwartze) mastoidectomy is a safe operation, and the functional results are extremely gratifying.[1] The ear is the organ of hearing, not a drainage tube for a diseased mastoid.

SUMMARY

1. Suppurative otitis media begins in early life, a large proportion during the first two years.

2. It is suggested that adenoids and teething catarrhs are symptoms of hypovitaminosis.

3. All wet meatal applications are condemned.

4. As long as discharge is free treatment should be careful removal of this, and application of powdered magnesium sulphate.

5. When discharge is less persistent a powder of iodine 1 part and boric acid 100 is recommended.

6. The importance of early operation as a means of saving hearing is emphasized.

* Iodine one part, boric acid 100; rub together into a fine powder and keep well stoppered, as the iodine is volatile. Not to be used after mercurochrome.

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[1] Watson-Williams, E.: "Prognosis in Mastoid Disease," *Practitioner*, January, 1929.
[2] Idem: "Septic Meningitis," ibid., December, 1931.
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SOME NOTES ON INDUSTRIAL ANTHRAX

ITS DIAGNOSIS AND TREATMENT

BY

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Bradford and district have the unenviable reputation of being the chief centre of industrial anthrax in this country. It was here that the name of "wool-sorter's disease" was coined, and "*maladie de Bradford*" is the name still given in France to pulmonary anthrax. This relative frequency of the disease in the West Riding and the courtesy of colleagues have enabled me to see and take notes of 340 cases of cutaneous anthrax and of twenty-four cases of pulmonary and gastro-intestinal anthrax.

SOURCE AND MODE OF INFECTION

The source of infection can in some cases be ascertained with certainty, as when a butcher contracts cutaneous anthrax from slaughtering a beast subsequently found to have suffered from splenic fever, or when anthrax bacilli have been cultivated from a sample of yarn previously handled by the patient. On another occasion anthrax bacilli were grown from both warp and weft handled by a patient, from the remainder of the raw material from which warp and weft had been spun, from portions of the same raw material bought by firms in two distant towns, and finally from clippings of cardigan jackets which had been made from the same material before its infectivity had been discovered. At other times the source of infection is left in doubt, either because the patient had been in contact with more than one species of dangerous wool or hair, or because the material handled by him had already been worked up and had left the factory by the time the investigation could be conducted.

The mode of infection, on the other hand, is often left in doubt. There can be none when the patient has, for example, been able to trace infection to a prick from the pin of a preparing machine through which infected mohair was found to have passed, or when a farm-hand with chapped hands and wrists had been detailed to assist a butcher, and subsequently presented five separate pustules, all of the same age, on these parts. In most cases the mode of entry cannot be determined. I have examined bacteriologically the scrapings from under the nails of all the workpeople employed in a factory from which cases of anthrax frequently reached me, without success. A schoolboy died of an anthrax pustule in the cheek: he had played football during the dinner-hour with some lads clad in the overalls worn by them while handling East Indian wool. While an abrasion here probably afforded an entry to the virus, there was no evidence as to its mode of entry in the case of a lad who died of a malignant pustule after sleeping on some sacking

which had contained Persian wool. Pimples are often claimed to be the point of entry, but it is difficult to see how they could be unless they had been injured and blood had been drawn. In many cases there is no history of a lesion of the skin, and it is supposed that the infecting spores may be passed mechanically along hairs to their roots, and thus initiate the "pustule." The clothes of workers may convey the infection: three women contracted the disease washing their husbands' overalls; and a wool-sorter who had been away from his work because of a broken arm died of pulmonary anthrax after a street fight, in which he had received a "dusting."

CUTANEOUS ANTHRAX

Cutaneous anthrax is naturally seen with greatest frequency on exposed parts, and of these some are more easily infected than others, the occupation being sometimes the determining factor—as in that of tanners, in whom, as a result of their mode of carrying the hides, the neck is a frequent site of the pustule. It is, however, a curious fact that the skin of the fingers is rarely attacked. On the other hand, I have seen "malignant pustules" on the shin, on the thigh, and even on the abdominal wall and between a woman's breasts.

The appearance of cutaneous anthrax varies. Its most common form, the "malignant pustule," is often said to be a characteristic structure when fully developed. This is an error. Given a vaccine pock on an unusual site, such as the angle of the mouth, the eyelid, or the cheek, accompanied as it often is in these situations by much redness and swelling of the surrounding parts, then mere inspection will fail to find distinguishing features. A history may help, as the vaccine pock takes somewhat longer to attain maturity: even this may deceive. The presence of a recently vaccinated member of the household may give our thoughts the right direction. The following case was more difficult. A lad employed upon dangerous wool had a "pustule" on the side of the neck; there was no one in the house who had been vaccinated. On closer questioning I discovered that the boy was wearing the clothes which his elder brother had discarded after having been vaccinated on joining the Army some weeks before. Streptococcal and pneumococcal infection of the skin may also produce lesions indistinguishable clinically from anthrax; this is true not only of the rare erysipelatous variety of anthrax, but of the "malignant pustule" also. I have once seen the hay bacillus give rise to a similar lesion. In other words, the diagnosis of cutaneous anthrax is primarily a bacteriological one. If this be applicable to the diagnosis of the mature classical "pustule," it is doubly so to the aberrant forms. Instead of the coal-black central eschar surrounded by a ring of vesicles upon an angry, red, and brawny base, we may find the eschar only without any vesicles, or the vesicles may be set some distance from the former; in other cases—and these are not necessarily early ones—bullae may predominate, a relatively small eschar lying among them; or one or two bullae may alone be present. In a fatal case of cutaneous anthrax of the wrist a white oedema replaced the red inflammatory area, and on it was one large flaccid bulla containing blood-stained serum. In another fatal case a similar white oedema disfigured a girl's chin and neck, but there was no vesicle or bulla, only a tiny black eschar, the size of a pin's head, on the point of the chin. In some instances the redness and inflammatory oedema may be almost absent, while in others it may involve a whole limb, or, extending over face, neck, and chest, give these parts gigantic proportions. If, then, a bacteriological examination is necessary for the diagnosis even of the fully developed lesion, it is more than ever necessary if the disease is to be recognized in its early stages, when most amenable to treatment. A spot not unlike a flea-bite in size, shape, and colour, crowned perhaps by a tiny vesicle or by a minute abrasion, may meet the disappointed view of the spectators of a demonstration; yet anthrax bacilli will have been found in the contents of the vesicle or in the serum obtained from the denuded area after gentle scraping with a scalpel. A further difficulty is introduced at times by the applications of homely remedies, such as cobbler's wax or poultices, which may profoundly alter the natural appearance of the lesion.

A few slides, a watery solution of methylene-blue, gentian-violet, or fuchsine, and a 1/6 inch objective are all that is needful. So rarely has the microscope failed us that it would be a mistake to postpone specific treatment until cultural confirmation shall have been obtained; but as anthrax is a disease to which the Workmen's Compensation Act applies such confirmation should always be sought. If the serum has to be sent to a distant laboratory it is best to dry some of it on threads, on slides, or on sterilized fragments of earthenware, and not to forward it in capillary tubes only, as the serum often possesses bactericidal properties. It is strange that relatively little constitutional disturbance may accompany extensive local changes, and this disproportion, though not characteristic of anthrax, is yet suggestive, especially in the erysipelatous variety, in which a "pustule" is absent.

ANTHRAX OF RESPIRATORY AND ALIMENTARY SYSTEMS

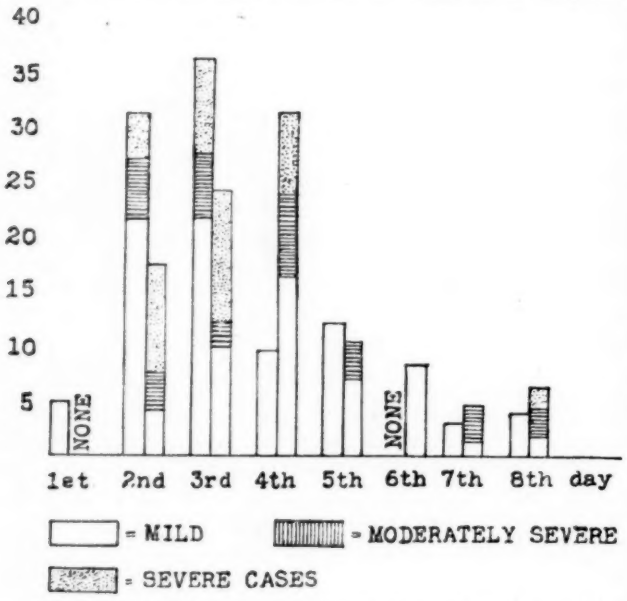
Thus, once the possibility of cutaneous anthrax occurs to the mind the diagnosis is generally easy—not so the diagnosis of anthrax of the respiratory system and of the alimentary tract. Of the latter I have seen only one case, in consultation with Dr. Marshall, late of Halifax, who had made the diagnosis by a microscopical examination of the blood-stained vomit. I have, however, seen two cases in which the stomach became infected secondarily, serum having trickled, from the nose in the one, and from the forehead in the other, into the mouth. The possibility of achlorhydria in these patients was unfortunately not considered. Three infections occurred in the upper respiratory tract—one affecting a nasal passage, a second the right tonsil, and the third the tissues between the epiglottis and the anterior pillar of the fauces: only the first case survived. The twenty-three pulmonary cases all ended fatally. In one the diagnosis was made reasonably early by use of the opsonic index, while in a second the disease was strongly suspected on clinical grounds. The diagnostic history of the remaining twenty-one cases was as follows: in four cases no medical advice was sought; in eight the patients were dying when advice was sought; in four suspicion was aroused only by sudden and unexpected death; in five no suspicion was aroused till collapse occurred. Though this shows how rarely an opportunity is given for considering the possibility of internal anthrax at an early stage, and how ambiguous and relatively innocent the initial symptoms may be, yet occasionally the constellation of the symptoms is so unusual as to call for special consideration, as when joint pains and precordial oppression, or joint pains and glandular enlargement, are complained of. It is conceivable that when suspicion has been aroused the estimation of the opsonic index, or the bacteriological examination of blood drawn from the affected lung, may confirm it. The examination of a pleural effusion will rarely benefit the patient, as these effusions are usually of late occurrence; nor will the examination of cerebro-spinal fluid when there is cerebral involvement. Recovery from internal anthrax is very rare. I find no record of such recovery in the clinical notes left by the late Dr. J. H. Bell, nor have I seen one. The late Dr. Wm. Mitchell of this city published notes of one alleged case of

recovery, but the diagnosis had not been confirmed bacteriologically.

The generalization of anthrax is largely embolic, as is shown by the distribution and structure of the secondary intestinal lesions, the emboli being derived from thrombosed veins in the area of the primary focus. It is very doubtful whether the bacilli multiply in the blood stream. Their presence in it is not necessarily a sign of impending death. I have on several occasions been able to cultivate them from the blood, and yet the patients recovered. A sign of ill omen is delirium. Consciousness to the last is a characteristic of anthrax. Often the patient feels the approach of death: "I am done for" is a common expression, but now and again this feeling is absent. "How do you feel?" a dying patient was asked, as he lay pulseless: "Oh, nicely, only a bit weak," he replied, turned on to his side, and died. On another occasion the anxious family doctor called upon his dying patient at 1 a.m., expecting to find the family about the bed. To his surprise the house was in darkness: all had gone to bed and were vexed—the patient included—at being disturbed "without reason"; the man died four hours later. Delirium almost always indicates involvement—haemorrhagic in nature—of the meninges; this pia-arachnoid haemorrhage is often so extensive as to cover the whole brain and even to extend to the coverings of the cord.

PROGNOSIS

The prognosis of anthrax, and especially of the cutaneous variety, depends largely on an early diagnosis. This is best ensured by the appointment in centres in which industrial anthrax is known to occur of a medical practitioner whose duty it shall be to examine every operative presenting suspicious symptoms. To this end the Factory Department of the Home Office has issued an illustrated monitory poster to be hung up in the factories and workshops. This plan has been adopted in Bradford, and its results are shown in the accompanying diagram,



The first of each group consists of patients first seen by specially appointed practitioners; the second of each group consists of patients first seen by other practitioners.

in which mild, moderately severe, and severe cases are arranged according to the day of the disease on which the diagnosis was made, and as to whether seen by a general practitioner or by the appointed examiner. The advantage of the system is obvious. The comparison thus made is a fair one, as all the patients were treated in the same institution and on the same principles.

TREATMENT

The treatment of cutaneous anthrax used to be excision whenever the site of the "pustule" permitted. We have now for many years discarded excision, reserving it for those cases in which the "pustule" is very small and on a site notoriously apt to favour rapid extension, such as the neck. Excision is still claimed by some to be the safer method, the accidental entry of bacilli into the operation wound being considered of no moment. It is true that successful infection depends upon the number of germs introduced into the tissues. That number may on occasion be so small as not to be dangerous, but the veins beneath the "pustule" are often extensively thrombosed, the thrombi crowded with bacilli, and I have seen disastrous results follow their section. With the abandonment of excision as a routine method of treatment our results have improved, the mortality of the last 200 cases of cutaneous anthrax being only 5 per cent. It is not possible to compare these results with those obtained by others: their figures are often too small, and prognosis depends so much upon factors not referred to in their statistics, such as the frequency with which certain sites have been affected, the stage in which treatment was begun, and the nature of the infecting material. It is obvious, for instance, that statistics which include many cases of pustules on the neck cannot be justly compared with those in which most of the lesions have occupied less dangerous sites. When excision is decided upon, the greatest possible care must be taken to avoid infection of the wound. A rise in temperature a day or two after the operation may indicate its occurrence; but fever is not a necessary accompaniment. At the Bradford Royal Infirmary excision has now been replaced in most cases by the injection of salvarsan and of anti-anthrax serum. Since 1911 it has been my practice whenever I have used salvarsan to give two moderately large doses, the size of the dose being relative to the sex, age, and constitution of the patient, generally with an interval of a day. It is rarely necessary to give more, and I have never deemed it desirable to give—as I have heard have been given elsewhere—daily injections of some magnitude for a whole week. With no other treatment but this I have seen fever subside rapidly, with a coincident general improvement; but we usually combine it with the older method of injecting, intravenously or subcutaneously, anti-anthrax serum.

First introduced in 1899 Sclavo's serum has been almost solely employed. The results attending its administration appear to us to have been so good that the use of other serums seemed scarcely justifiable. Only during the war, when Sclavo's serum was for a time unobtainable, did we employ Mulford's serum, with success in the few cases in which it was given. The initial dose of either serum has since 1908 been 80 c.cm., followed by 60 c.cm. on the following day. Sometimes the dose of 80 c.cm. was repeated, and injections up to a total of 300 c.cm. have been given with no ill effects other than the usual joint pains and urticarial eruptions. The relative values of these remedies are uncertain; salvarsan, however, offers the advantage of being easily obtainable. Whichever method of treatment is chosen, one condition must in every case be fulfilled: the part affected *must* be put at rest. The necessity of this was brought home to me many years ago by the relative mortality of patients with malignant pustules on the wrist and on the forearm: of eleven with pustules on the wrist seven died; and of a similar number with pustules on the forearm, none. The greater mobility of the former is the obvious explanation. If a limb is the site, it is carefully splinted, and if an arm, it is also supported on a pillow. If the head or neck is affected,

then sandbags are applied and the head is kept in position by a folded towel carried across the forehead and fixed beneath the sandbags.

The internal administration of sulphur has been advised; with what justification based upon experience I know not. I have used chrom-argentum in one case, which ended in recovery; it has been claimed that very severe cases have been cured by the sole administration of it intravenously. In China (Hankow), I am told by Dr. E. F. Wills, certain leaves are credited with curative properties, and samples have reached me; but as only two authenticated cases have, to my knowledge, been so treated—with recovery, it is true—I have not felt justified in applying the leaves to the exclusion of every other remedy—the only method by which their claim to utility can be vindicated.

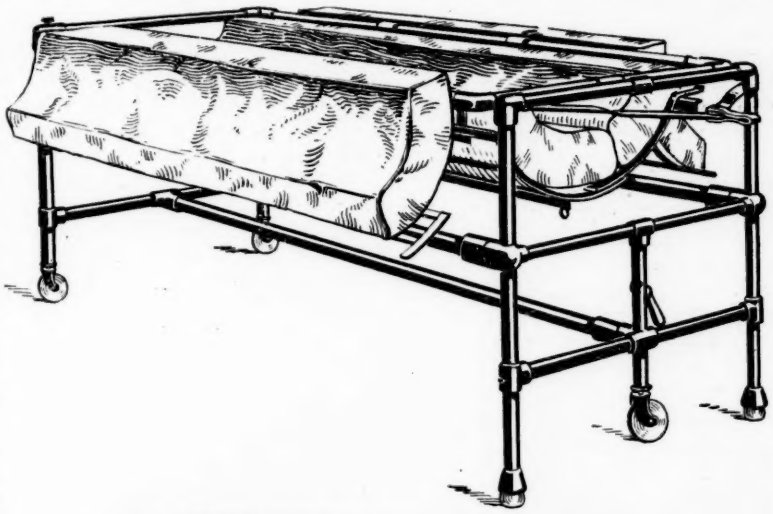
AN IMPROVED PATTERN OF THE REVOLVING SPINAL BED

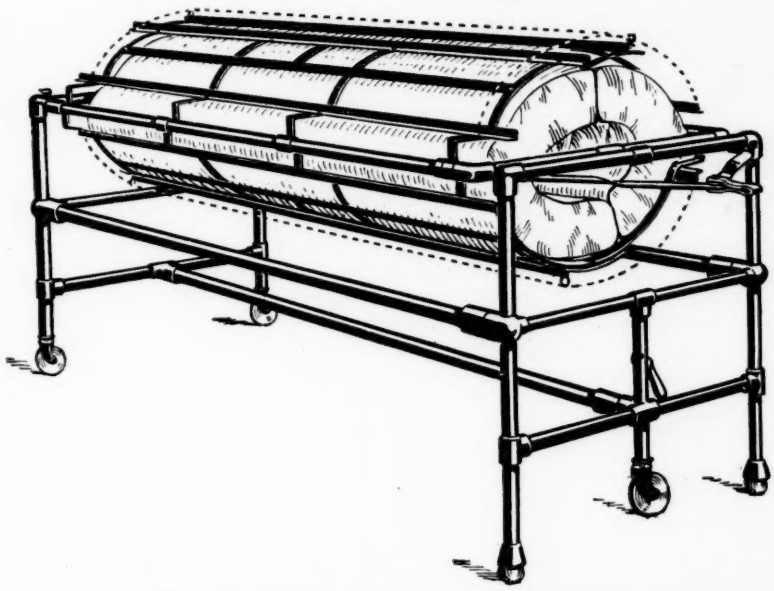
BY

ERNEST W. HEY GROVES, M.S., F.R.C.S.

EMERITUS PROFESSOR OF SURGERY, BRISTOL

Three years ago I published an account of a special reversible spinal bed (*Journal*, January 11th, 1930). Since that time the value and utility of this appliance has been abundantly demonstrated by the experience of others as well as myself. But a difficulty in its use has also been experienced, and this has been overcome by the design of a new model.





The principle of the bed is to enclose the patient in a cage, which, supported on a bed-frame, could be revolved. When the patient is lying on his back the front of the cage can be removed, and when he has been turned over the back can be exposed by removing the back part of the cage. In the original model the cage was flat behind and in front—that is, it was shaped like a parallelogram in transverse section. The difficulties met with in the use of this pattern were twofold. First, it was necessary to pack the patient very tightly in the cage by a number of pillows, in order to prevent him from slipping sideways in the act of turning him over. Secondly, it was difficult to adapt the same cage for thin or stout patients, and this, too, could only be done by packing with pillows in the case of a small patient.

The new model illustrated here overcomes both these difficulties. The cage is oval or elliptical in transverse section. The patient lies in a trough, formed by a shaped mattress, in two halves, lying on the curved framework of the cage. This has another advantage, in addition to the firmer fixation, when being turned. It is that the patient's body is kept more rigid when lying on his back in this trough than it was when he lay on a flat mattress: he cannot roll from side to side, and this prevention of rolling is certainly desirable in cases of spinal affections, whether tuberculous or traumatic. The front of the cage is also curved in transverse section, and this is more easily explained by reference to the illustration than by description. In the upper figure the cage is open, the front portion being thrown back and lying against the sides of the bed. In the lower figure the cage is shut, as it would be when the patient is about to be turned over. In this position the patient lies held quite snugly all round his body and legs by the mattresses, and there is no need for any packing pillows. When he is being turned he is held just as securely when half-way round, on his side, as he is when lying on his face, or on his back, so that the turning can be done as slowly as desired. The oval shape of the frame makes it easy to adapt it to patients of different girth. The curved metal bars of the frame overlap for rather more than six inches, and can be locked in any one of six different positions, so that as this varying amount of overlap occurs behind as well as in front, the circumference of the oval frame can be varied by 12 inches. The arrangement of the bedpan may be made in one of two ways. There is a gap between the back mattresses opposite to the buttocks. This can be occupied by a round cushion or the bedpan, or, if the patient is incontinent, or if a nurse is not in constant attendance, the bedpan is placed outside the cage supported on a special metal arm, which can be swung into place or outwards as may be desired.

I have found this type of bed-frame of the utmost service for all kinds of serious spinal disease, and especially for those necessitating bone grafting or laminectomy. Then, too, fractures of the spine, with or without paraplegia, almost demand some such appliance. The back, the buttocks, and the skin require daily attention to prevent bed-sores, and it is almost impossible to move such a patient without great risk and great pain, unless

some mechanical device is provided. With this bed one nurse can manage the case single-handed without effort or strain. With the ordinary hospital bed a patient with a fractured spine can only be turned by the united efforts of two, three, or four nurses, and each turning movement is painful and risky. In addition to cases of spinal disease or injury, those of fractured pelvis are most conveniently treated on this bed. The pelvis and buttocks are firmly held when the patient is turned over.

The bed is made by Messrs. Nesbit Evans of Wednesbury, and can be obtained from Messrs. Down Bros., 21, St. Thomas Street, S.E.1.

THE PERMEABILITY OF THE BODY TO INFRA-RED RAYS

PRELIMINARY COMMUNICATION

BY

C. B. HEALD, M.D.

PHYSICIAN IN CHARGE OF THE PHYSICAL MEDICINE DEPARTMENT, ROYAL FREE HOSPITAL

It is impossible to work with the Finsen light on lupus, or with the Kromayer lamp on tuberculous or other glands, without being convinced that clinically these apparatuses behave quite differently when compared with any of the ordinary methods of giving ultra-violet light to the body. The Kromayer lamp is essentially a mercury vapour lamp, and even when care is taken that the dose, as judged by skin erythema, is the same, the mechanical and physical differences between these two lamps are significant. In the Kromayer the rays emitted from the mercury arc travel through a very small air space, then through a circulating body of cold water ; they then pass through quartz direct to the part to be treated, which is rendered as far as possible avascular by pressure. In the ordinary mercury vapour lamp the rays emitted pass through a relatively wide air gap before reaching the skin. The clinical differences observed must therefore be due either to the absorption of some ray in the air in the one case, to the removal of some other ray or rays by the water in the other, or to the greater permeability to some useful ray possessed by quartz and water in comparison with air.

Some three years ago Professor T. R. Merton kindly gave me the benefit of his technical advice on these observations, and pointed out that the water film cuts off all rays above about 11,000 Angström units, but that in the mercury vapour arc there is a strong band of infra-red rays between 7,000 and 9,000 units, and that it might be this band that accounted for the clinical differences, particularly in tissues below the skin. He supplied a filter that cut off the ultra-violet part of the beam, and experiments with this showed that his surmise was correct, and that reduction in glandular swellings could be effected without the production of the skin erythema associated with ultra-violet light irradiation. The drawback to the routine use of this filter lay in the fact that, while eliminating the ultra-violet, it also reduced the energy of the infra-red beam, and necessitated a greatly prolonged dose to produce adequate clinical response.

The production by the *Times* of their wonderful series of infra-red photographs reawakened my interest as to the possibility of using a similar process for taking photographs through the body, in the hope that, if successful, the rays would be found to penetrate tissues in a different ratio to *x* rays, and to show up structures not well delineated by the latter. They would thus form a complementary method for giving information about the internal condition of the body, particularly the soft tissues in and around joints.

PRELIMINARY INVESTIGATIONS

That rays towards the red end of the spectrum pass more readily through skin tissues is, of course, known to everyone who has held his hand to the bright sun and seen the pink appearance of the fingers. Carl Sonne[1] and Cartwright[2] have discussed the penetration of infra-red rays, and the latter, using a vacuum thermo-couple, took photographs of the spectrum on infra-red plates after passing a beam of light through the cheek. The diagnostic possibilities of the permeability of tissues to the infra-red rays do not, however, appear to have received attention, nor can any attempts be traced in the literature towards making these rays penetrate and emerge from the thicker parts of the body, and registering them on emergence.

With my experience of the Kromayer lamp, and the *Times* photographs in mind, I approached Mr. Bloch, Mr. Flower, and Dr. Harrison of Ilford Limited, who kindly endeavoured to obtain photographs through the hand, and, though these showed clearly that infra-red rays did go through the thickness of the fingers, the comparative insensitivity of the plates as at present manufactured so prolonged exposures that they made the method impracticable, even for such thin structures as the fingers, and quite impossible for the thicker parts of the body. I therefore asked Mr. Bloch if he would attempt to pick up the emergent ray on a photo-electric cell, and demonstrate its presence by a deflection, if any, on a suitable galvanometer. A diagram of the apparatus set up by Ilford Limited for picking up the emergent ray is illustrated in Fig. 1. It will be seen to consist simply of

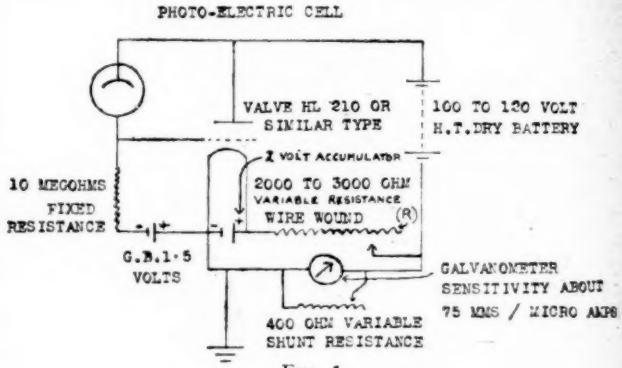


PHOTO-ELECTRIC CELL
VALVE HL 210 OR SIMILAR TYPE
100 TO 120 VOLT H.T.DRY BATTERY
2 VOLT ACCUMULATOR
10 MEGOHMS FIXED RESISTANCE
2000 TO 3000 OHM VARIABLE RESISTANCE WIRE WOUND (R)
G.B.1·5 VOLTS
GALVANOMETER SENSITIVITY ABOUT 75 MMS / MICRO AMPS
400 OHM VARIABLE SHUNT RESISTANCE

FIG. 1.

a photo-electric cell particularly sensitive in the region of 7,000 to 9,000 Angström units, and a single-valve method of amplifying any alteration in the current flowing in the filament-plate circuit, such alterations being indicated by deflections on the galvanometer inserted in this circuit.

TECHNIQUE AND RESULTS

It then only remained to provide a source of infra-red light in such a position that the beam would fall upon the photo-electric cell. This was done by an ordinary 50-watt or 100-watt lamp in a light-proof casing with an infra-red filter upon the side facing the photo-electric cell. The cell was also encased in a light-proof metal shield, with aperture to admit the incident beam. The gap between the filter and the shielded cell was sufficient to admit a wrist or forearm, and also a movable screen opaque to infra-red rays. In the preliminary investigation a reflecting galvanometer was used, and the experiments were carried out in a dark room, so that stray beams of light should not be reflected off the skin and produce misleading deflections. These experiments showed that, with appropriate sensitivity in the amplifying instrument, a wide deflection of the spot of light could be obtained after the infra-red beam had been passed through

a wrist. The next step was to endeavour to obtain a permanent record of the deflection so that variations in normals and abnormals could be measured and possibly standardized. The electrocardiograph galvanometer and recording camera appeared to provide the possibility of doing this, and the leads for the galvanometer were carried to a pair of Einthoven leads of a standard Cambridge instrument apparatus kindly loaned by Dr. Jenner Hoskin. The procedure was then to put the fibre at a prearranged position on the scale, with the infra-red opaque screen in place, and turn on the source of infra-red light to make sure that no deflection occurred. The wrist or forearm was then interposed and closely applied to the infra-red filter, so that all rays emerging through the filter were bound to fall upon the skin and skin only. The screen was then withdrawn, and the string of the galvanometer at once deflected and returned to its original position on replacing the screen. Photographs of this deflection were then taken by allowing the plate to fall in the usual way, removing the screen, and replacing it a few times as the plate fell.

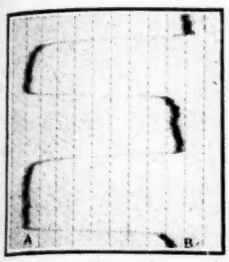


FIG. 2.—H., male, aged 50. Left wrist-joint, with centre of beam between styloid processes.

The accompanying graphs from three different individuals (wrists and forearms) with the same setting of the machine were then secured. It is not possible to state at this stage that the wide variations shown by these graphs are due entirely to differences in the permeability of the structures through which the rays pass. It is only possible to state that repeat experiments yielded similar results. In the illustrations A indicates the position of the fibre with the screen inserted; B indicates the position with screen withdrawn.

FIG. 3.

FIG. 4.

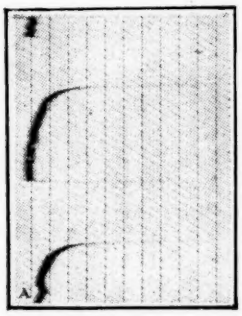


FIG. 5.

FIG. 3.—M., male, aged 30. Wrist-joint, with centre of beam between styloid processes. Transverse diameter of this wrist was 3 mm. more than in Fig. 2.

FIG. 4.—M., male, aged 30. Right forearm, a few inches above wrist-joint.

FIG. 5.—H., male, aged 21. Left wrist-joint, with centre of beam between styloid processes. In this case the subject is of altogether more slender build than either of the other two cases. The deflection of the fibre is so great that the "B" position is unknown, being off the plate.

DISCUSSION

These photographs can therefore be taken to establish the fact that infra-red rays of 7,000 to 9,000 Angström units can pass completely through the wrist and forearm. Also, as the source of energy was limited to a 100-watt lamp, and the sensitivity of the string of the galvanometer was only 3 mm. for 3 millivolts—that is, one-tenth of the sensitivity used in taking heart tracings—that, with greater incident energy and increased sensitivity of the galvanometer, thicker parts of the body than the forearm should be capable of penetration and the deflection of recording.

This preliminary communication is made in the hope that others will explore the wide field opened up by these records. Questions such as the following naturally occur:

1. Is there a "normal" for parts of a given diameter?
2. What factors influence variations from the normal other than physical thickness of the part—for example, age, sex, etc.?
3. Is there any variation in disease? For example, does an arthritis of one wrist produce a deflection different from that obtained by the wrist of the other side?
4. With increasing power and sensitivity of recording, what are the limits of thickness of the body to the passage of the infra-red ray?
5. Can anything be done to increase the speed and sensitivity of plates and films sensitive to these rays, and thereby obtain direct photographs?

Other questions also naturally suggest themselves, but I am endeavouring more particularly to obtain further information on Questions 1 and 4.

It would not be appropriate to close this communication without again extending my grateful thanks to Messrs. Ilford and their technical staff, Mr. Bloch, Dr. Harrison, and Mr. Flower; to Dr. Jenner Hoskin; and last, but not least, to Mr. Holt, whose technical knowledge and skill has materially assisted in obtaining these records.

REFERENCES

[1] Sonne, Carl: *Arch. of Phys. Ther., X Ray and Radium*, March, 1929, x, No. 3, p. 93.
[2] Cartwright, C. H.: "Infra-red Transmission of Flesh," ***Journ.*** *Optical Soc. Amer.*, 1930, xx, No. 2.

RADIUM BURNS

BY

J. MERVYN THOMAS, M.D., B.CH., B.Sc.

RADIUM REGISTRAR, CARDIFF ROYAL INFIRMARY

The incidence of radium burns during or following surface radiotherapy by the plaque method is not often mentioned when quoting cases, but it must, of necessity, be proportionately high where a biological unit of radium exposure has not been attained. With the object of helping the radiotherapist, therefore, the following brief account has been compiled.

No statement would be adequate unless some clinical method for calculating the dosage were stated. It has been found that the skin undergoes certain changes during irradiation, beginning with an erythema towards the third day, and passing through an oedematous stage to tissue necrosis somewhere about the sixth to tenth day. The oedematous stage should be the aim of the therapist during treatment; it occurs rapidly in the course of twenty-four hours. All treatment should then cease, as the skin has reached its limit of tolerance. When this simple rule is applied the skin rarely ulcerates.

The caustic action of the β ray is too often neglected during treatment. The β ray is not tolerated nearly so well by normal tissues, and destruction must follow when the areas are exposed to high intensities for short periods or to low intensities for long periods. The burn may be immediate or latent. If the former, it develops during treatment or at any time up to three months, and may vary in form from a simple erythema to desquamating patches and finally definite ulceration. Later these may become excavated areas with a yellowish grey slough and persistent discharge (purulent or watery). Pain is usually severe and healing obstinate. The delayed burn occurs any time after three to six months, and is manifest by an ulceration of the skin following some irritation or friction.

PREVENTION AND TREATMENT

The following details have been tabulated for clearness:

1. Radium treatment should not be given to patients suffering from cachexia, anaemia, a white cell count under 5,000 per c.mm., diabetes, nephritis, extreme obesity,

advanced myocarditis, active pulmonary tuberculosis, marked arteriosclerosis, or any general debilitating disease, general sepsis, local inflammation, or infection.

2. There must be no ulceration of the skin immediately prior to treatment.

3. The skin must be cleaned and lightly powdered with dusting powder before applying the plaque, and this must be repeated on alternate days to ensure the absence of perspiration or fetid discharge irritating the skin.

4. The plaque should fit the area to which it is applied firmly and without possibility of friction.

5. It should be removed at once on the appearance of oedema in the skin (clinical oedema dose).

6. The part should be subsequently well powdered or calamine lotion applied. No soap should be used for two months.

7. Following radiotherapy there should be no friction, irritating apparel, etc.

8. The plaque should be removed immediately the burn appears, and the radium treatment discontinued.

9. The area should be cleansed thoroughly without soap, and a dressing of eucalyptus and paraffin (5 per cent.) applied. This should be replaced by sterile vaseline at a later stage when healing is evident.

10. The use of powders, etc., should be avoided at this stage.

11. Rest should be secured.

12. Where healing is intractable, rapidity may be aided by an erythema dose of ultra-violet light.

CASE REPORTS

This method of treatment has been freely used in all cases of radium burns, both large and small, during the last year at this hospital with marked results, as the following three cases show.

Case 1.—The patient, aged 50, was admitted to hospital with recurrence of lymphadenoma on the opposite side of the neck; the original side had been treated with radium two years previously, and a burn had followed. The recurrence was treated, but an intractable burn followed—due to an accidental overdose—which extended from the angle of the jaw to the clavicle, on the right side. The treatment described was applied with beneficial results until an area the size of a sixpenny-piece was reached; this proved obstinate, but was overcome by the application of an erythema dose of ultra-violet light. The condition at present is completely healed, with supple scar and less pigmentation than on the site of the previous burn. The time limit from onset to complete healing was five weeks.

Case 2.—A man, aged 23, with lymphadenoma, received an adequate dose of radium, and was retained in hospital for one week following treatment, when he was discharged. He reappeared a week later with a statement that his own doctor, not satisfied with the slight redness of his neck, had ordered fomentations. The result was that the epidermis had been removed from the whole of his neck. A dressing of eucalyptus and paraffin was applied freely, to the patient's immediate relief, and the neck was completely healed and all dressings removed in fourteen days. No scar is now visible.

Case 3.—A patient, aged 15, with myelocythaemia, was first treated in 1931 by radium application to the abdomen; no burn followed. He was again treated in December, 1932, and three or four burns appeared on the abdomen a few days after the radium treatment ceased. The epidermis had been removed, and there was a thin, watery discharge. Eucalyptus and paraffin were applied, with the result that all dressings were removed at the end of a week with the condition healed.

COMMENTARY

By the method of treatment described pain is relieved, and the oily antiseptic dressing, which does not hurt the patient when it is removed, keeps the scar supple, promotes healing, lessens discharge, and promotes epithelization without undue granulation. Where a large area is involved the scar remains supple and not contractile—for example, in the neck.

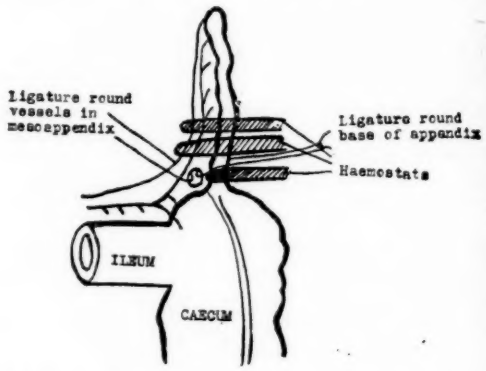
Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

A SMALL IMPROVEMENT IN APPENDICECTOMY

The very small modification in technique which I am about to describe may be familiar to many of my readers, but I have never seen it mentioned in the textbooks. I feel, therefore, that it may possibly be of use, and as it tends to save time it may fairly be called an improvement. Briefly, it is a method of tying both the meso-appendix and the base of the organ after the passage of only one ligature.

Let me assume that the most difficult part of the operation is over. The caecum and appendix are isolated. Three pairs of haemostats are applied to the base of the



appendix, the last near the caecum, and including only the actual thickness of the appendix. Opposite this pair the meso-appendix is pierced by an aneurysm needle in a bloodless area; the needle is threaded and withdrawn. If now the ligature be cut at the eye of the needle there will be two lengths of catgut protruding through the meso-appendix, transfixing it. One of these can be tied round the base of the appendix, the other must of necessity include all the vessels of the meso-appendix.

It may be argued that this method is not as safe as Kocher's, but it is usual to transfix any pedicle on which a vital ligature is to be placed. I have never known one such ligature slip.

London, S.W. A. R. C. HIGHAM, F.R.C.S.

INTERLOCKED TWINS

In view of the rarity of obstructed labour due to the interlocking of twins this case may prove of interest.

The following is the clinical history and management of labour in a case of "locked twins" delivered at the Royal Free Hospital on February 21st, 1933.

The patient, a single girl aged 19 (date of last menstrual period, mid-May, 1932; date of expected delivery, end of February, 1933), was first seen ante-natally when twenty-eight weeks pregnant. Progress throughout pregnancy was satisfactory. She also attended the venereal disease department for the treatment of syphilis. She was last seen on February 17th, 1933, at thirty-eight weeks; the presentation was diagnosed as a vertex left occipito-anterior, the head being still palpable in the abdomen. An *x*-ray examination was suggested to confirm the presentation, but this was not performed, as the patient went into labour.

She was admitted at 9.45 p.m. on February 20th in the first stage of labour, and on examination per vaginam by a senior student the cervix was three fingers dilated and the nature of the presenting part queried. A second vaginal examination was made by the obstetric assistant on February 21st at 8.45 a.m., after rupture of the membranes, and

a footling breech presentation in the left sacro-anterior position diagnosed, the cervix being almost fully dilated. At 10 a.m. the pains were definitely second stage in character ; the feet were visible at the vulva. There was no further descent of the presenting part for two and a half hours, in spite of strong pains. I decided to examine under anaesthesia and complete the delivery of the breech. On vaginal examination the cord was found to be prolapsed and not pulsating. The delay was due to obstruction from the interlocking of two foetal heads. Both heads were extended ; they were pushed up towards the fundus uteri, and the body of the first twin was rotated. The locked heads were disengaged finally by traction on the breech ; the head of the first twin was drawn down past the head of the second, this manœuvre being possible on account of the small size of the first twin. The second twin was delivered as rapidly as possible by artificial rupture of the membranes and by the application of forceps. It was a vertex right occipito-anterior, and was alive. The third stage of labour was of normal duration, and the haemorrhage moderate. The placenta was double and fused ; two amniotic sacs were present. The total duration of labour was thirty-six hours twenty-five minutes. The first twin, a female, weighed 4 lb., and was stillborn ; the second, a male, weighed 5 lb. 3 oz., and is alive. Both were two to three weeks premature. During the first four days of the puerperium the patient had pyrexia (Queen Charlotte's Hospital standard), due to offensive lochia. This responded to daily glycerin drain treatment. The condition on discharge of both mother and child was quite satisfactory.

I am indebted to Professor Dame Louise McIlroy both for her assistance with the delivery and for her permission to publish this case.

JOCELYN MOORE, F.R.C.S.,
Second Assistant, Obstetrical and Gynaecological Unit, Royal Free Hospital.

Reports of Societies

UTERINE INERTIA

At the June meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, with Mr. J. P. Hedley, the president, in the chair, a discussion took place on uterine inertia, with special reference to treatment. The discussion was opened by Messrs. A. C. Bell, C. M. Marshall, R. G. Maliphant, and R. Newton, with regard to the first stage of labour ; by Mr. A. J. Wrigley, concerning the second stage ; and by Miss B. Turner the third stage.

Mr. A. C. BELL remarked that the scientific treatment of inertia could not be established on a sure footing until its cause was known. He discussed the orthodox views found in textbooks, and said that, in his opinion, the most important factor was probably fear, which might inhibit uterine contraction through the liberation of adrenaline. There was little evidence to support the idea that fibrosis was the cause of rigid cervix. With Mr. Bourne, he had had sections of many rigid as well as normal cervices cut, and had found no microscopical evidence of fibrosis. In mild cases of inertia he advocated sedative treatment, and discussed the place of pituitary extract and other methods of simulating contractions. He condemned active dilatation of the cervix manually, or by hydrostatic bags. In severe degrees of inertia with "rigidity" of the cervix he held that Caesarean section had an important claim for consideration, and, when abdominal section was contraindicated, perforation of the foetal head with subsequent weight traction on an applied cranioclast was to be recommended. The serious nature of prolonged inertia was stressed. In a series of forty-nine cases he had found a maternal mortality of 10 per cent. and a foetal mortality of 40 per cent. In our present state of knowledge we were unable to predict which case would develop into the type of long-drawn-out inertia with rigid cervix and which case would, with patience, terminate spontaneously.

Mr. C. M. MARSHALL had seen the most marked examples of first-stage uterine inertia in cases (*a*) which presented some disproportion, (*b*) where the vertex presented with the occiput posterior, and (*c*) where, for obvious (for example, hydrocephalus) or less obvious reasons, there was inefficient and inadequate cervical contact and stimulation at the onset of labour. He maintained that mental exhaustion was more to be feared than uterine fatigue. In his experience treatment had been mainly sedative in nature, and morphine was still the best drug available. He regarded pituitary extract as dangerous and quinine as uncertain. For any operative intervention during periods of partial or complete inertia the use of spinal analgesia was advocated.

Mr. R. G. MALIPHANT remarked that inertia, like spasmodic dysmenorrhoea, was a disorder of function, probably dependent upon hormonic disturbances. Both frequently affected the same type of individual ; in neither condition could any structural defect be demonstrated in the uterus, and both gave their best results when treated along general rather than upon local lines. Probably hormones and psychic influences played an equally important part in the causation of weak uterine action. It was the placid rather than the anxious, worrying type of patient who had the smooth, easy confinement, but, with the march of civilization, the second type of patient was becoming more and more common, now that such wide publicity was given in the lay press to the dangers and mortality of childbirth. It was consequently one of the most important tasks of the obstetrician to earn the confidence of his patient, so as to promote a healthy frame of mind towards the approaching confinement. In the treatment of inertia the best results were obtained when the obstetric complication was neglected as far as possible, and when the accoucheur concentrated rather upon the condition of the individual as a whole. It was necessary to give regular nourishment, to relieve pain as much as possible, and to secure regular periods of sleep. He thought that glucose given frequently in half-ounce doses improved the quality of the uterine contraction, and that it combated the tendency towards acidosis, probably the chief cause of obstetric shock. There were two classes of cases which called for special treatment—the first was the case in which the head was high and the occiput posterior. In such a case no time should be lost in giving an anaesthetic and manually rotating the occiput forward. The head usually sank down upon the cervix, where it stimulated uterine action and prevented further loss of the liquor. The second class was the neglected case. The woman had perhaps been in labour with ruptured membranes for several days, and the cervix was still not half dilated. The least dangerous form of delivery from the point of view of the mother must be chosen, and a convenient and easy method was by applying traction to the foetal head by means of Willett's forceps.

Mr. R. NEWTON mentioned the results of an investigation of some 500 cases of delayed labour which he had treated as the resident obstetric surgeon in St. Mary's Hospital, Manchester. Of these, 147 were absolutely uncomplicated cases of delay ; a sedative was given, and in many quinine was used as a stimulant. Resort to mechanical intervention was never necessary in the first stage. There were no maternal deaths. In sixty-three cases early rupture of the membranes was the only complication, and in six of these it was necessary to incise or dilate the cervix. In twenty-nine cases early rupture of the membranes was associated with an occipito-posterior presentation, and artificial dilatation of the cervix was necessary in two of these. It was taught in Manchester that before a woman entered into labour it was possible to obtain some idea of the activity of the uterine muscle. When the tone was poor, as tested by its reaction to palpation, the action of the parturient uterus was likely to be sluggish. In these cases medicinal induction of labour at term was advised. The judicious use of morphine in the first stage was strongly advocated. He had not been convinced of the value of ovarian residue, except that in some cases it diminished pain in the contractions. He had not much faith in mechanical dilators of the cervix, but, if one was used, his preference was for Gerrard's cup dilator, because it did not displace the presenting part nor injure it.

Mr. A. J. WRIGLEY dealt with the management of uterine inertia in the second stage of labour. He emphasized that cases in which uterine exhaustion was secondary to a mechanical obstruction were not to be considered in the discussion; for the common type of delay due to muscular resistance he unhesitatingly recommended the application of light forceps to the foetal head. He considered that it was quite unnecessary to await the onset of maternal or foetal distress before the light forceps were applied. He demonstrated to the meeting the forceps which he used, which weighed 11 oz. instead of the customary 2 lb. He wished the meeting to consider whether it would not be better for teachers of obstetrics to advocate the more frequent use of short, light forceps in the treatment of inertia in the second stage than to teach the strictly limited use of the orthodox heavy instrument, which was far too clumsy and bulky for this purpose.

Miss BEATRICE TURNER described the management of the third stage of labour as practised in the Obstetric Unit of the Royal Free Hospital. No drugs, such as pituitrin or ergot, were ever given before the placenta had been expelled. She had attempted to analyse the causes which had produced prolongation of the third stage in a series of 400 labour cases. In her series, third-stage inertia was present in 65 per cent. of cases in which forceps were used. Analgesic drugs given in the first stage seemed to have had little effect on the expulsion of the placenta, but the anaesthetic used for the second stage had a definite effect. Gas and oxygen seemed to improve the tone of the uterine muscle, and hastened the delivery of the afterbirth. Chloroform, on the other hand, had been found to result in delay.

GENERAL DISCUSSION

Dr. J. M. WYATT was against using hyoscine and morphine in large quantities, and thought that equally good results could be obtained by giving chloral, but it must be in sufficient doses. Twenty-grain doses were not sufficient—they should be 40 grains at least, or, as an alternative, paraldehyde, 6 or 7 drachms in olive oil, could be given per rectum with good results. In cases with ruptured membranes, with the foetus alive, he had found Willett's forceps applied to the scalp of the foetus the most useful instrument. He had one comment to make on Mr. Bell's statement that if the membranes had ruptured the risk of Caesarean section was greater: he felt that it came about from the fact that, in so many cases where the membranes had ruptured, much manipulation had taken place, whereas if no internal examinations had been made there was no greater risk to the patient. For the last fifteen years he had invariably given 5 units of pituitrin as soon as the baby's head was born. During that time he had never had a retained placenta, and he had found that the third stage of labour usually lasted only five minutes, and that very little blood was lost.

Mr. CARNAC RIVETT said that he was an advocate of the administration of small doses of chloroform, given only during pains, but he wished to state that in primary inertia he considered this form of relief absolutely contra-indicated.

Dr. J. S. FAIRBAIRN congratulated the openers on their papers. He considered that the only logical method of treating uterine inertia was to prevent it or to adopt measures which would have the effect of restoring normal function. He felt that there was a great deal to learn on this subject. Mr. GORDON LUKER considered that uterine inertia was to some extent preventable, and that prophylactic treatment had an important place. In his practice this treatment consisted in the administration of calcium and quinine for the last three weeks of pregnancy, and the employment at term of castor oil, a binder, hot bath, an enema, quinine, and bihydrochloride. The speaker had no doubt about their efficacy. He agreed with the use of pituitary extract at the end of the second stage of labour. His method was to give 1/2 c.cm. of pituitary extract before resorting to forceps. If the drug did not act successfully delivery was aided by forceps without delay.

In reply, Mr. A. C. BELL said that his advocacy of pituitary extract in the first stage of labour had been questioned. He had seen dramatic results from giving it in inertia; it could do no harm in doses of 1/2 c.cm. He wished to refer to one further point: it had been claimed that atropine would relax the rigid cervix. He considered that there was no foundation for that statement. Mr. Marshall, referring to Mr. Wyatt's doubt with regard to the importance of the ruptured membranes, said he did not consider it was right to say that premature rupture of the membranes did not increase morbidity following Caesarean section, but he was certain that the lower segment Caesarean operation definitely minimized the risk. Mr. MALIPHANT said that he had not had time to mention in his opening paper the subject of heredity in connexion with protracted labour. He knew of families in which childbirth was always unduly tedious and painful. Mr. NEWTON said that he looked with apprehension on early rupture of the membrane in primigravidae. In 150 cases where the membranes were not ruptured early he never had to interfere, but in sixty cases in which there was nothing wrong except early rupture, he had had to interfere in 6 or 10 per cent. of them. Artificial dilatation of the cervix made a big difference in foetal mortality and maternal morbidity. Mr. WRIGLEY, referring to the use of the light forceps, said that he had not meant to imply that the long curved forceps should be thrown out of use, but that that instrument should be used only by those who were experts in obstetrics. It was not adapted for being used indiscriminately for high head or low head.

THE ANAEMIAS

The present state of knowledge in regard to the anaemias was reviewed at the summer meeting of the Association of Clinical Pathologists, held in the pathological department of Ancoats Hospital, Manchester, on June 24th.

Papers were read dealing with pernicious anaemia, anaemia of the so-called secondary types, and the anaemia of sprue, and evidence was produced that, thanks to the advance in knowledge in the last few years, all these anaemias were now definitely remediable. It was agreed that in the case of pernicious anaemia it was perhaps incorrect to speak of "cure," and the same applied, though to a lesser extent, in the case of some of the "secondary" anaemias, but in all it was now possible, once a correct diagnosis had been made, to restore the patient to health, and under suitable treatment to maintain him there. It was pointed out that correct diagnosis was an essential preliminary to correct treatment, and that this could only be made by the employment of laboratory methods. In the discussion attention was drawn to the deplorable wastage resulting from failure in correct diagnosis and inefficient treatment. This wastage involved material in the prescription of expensive preparations, particularly of liver, to unsuitable cases, and in the use of highly priced commercial preparations of low potency, evidence being produced that the most highly priced preparations were by no means the most efficient; it involved human efficiency in the persistence of many individuals in a state of debility who, with proper treatment, might be in good health; and it involved human life from failure of correct diagnosis and inappropriate and inefficient treatment. It was pointed out that the National Health Insurance Acts were largely ineffective in remedying this wastage, owing to the fact that they provided for treatment only and made no provision for diagnosis or for the laboratory examinations necessary for the maintenance of health in cases of anaemia. At the conclusion of the meeting the following resolution was passed:

> This association is of the opinion that the failure to provide laboratory facilities for the examination of the blood in the case of patients under the National Health Insurance Acts suffering from, or suspected to suffer from, anaemia is responsible for much wastage both of material and of human efficiency and life, and considers that centres should be established at which such laboratory service be available both for initial differential diagnosis and for the periodical examinations necessary to assure the maintenance of a sound state of health.

Reviews

DISEASES OF INFANCY AND CHILDHOOD

An important and ambitious contribution to the literature of paediatrics has just appeared in the form of a two-volume textbook, entitled *Diseases of Infancy and Childhood*,[1] edited by Professors LEONARD G. PARSONS and SEYMOUR BARLING. The Birmingham school of paediatrics can justly be proud of this production, to which there are nearly fifty contributors, including sixteen or so who have some connexion with London and six from either Canada or the United States. It is difficult to judge exactly what criteria have led the editors to choose their helpers in every instance, and the omission of some names from the list, such as those of Still, Hutchison, and Fairbank, will be disappointing to many readers at home and abroad. To have secured Edwards A. Park and Martha M. Elliot to contribute the section on rickets has resulted in a magnificent article marred only by the number of black babies chosen for illustrations which are scarcely typical of what is to be seen in this country. On the other hand, it is difficult to judge why it was considered necessary to go to Canada for the section on the premature child, which, excellent as it is, could have been done equally well by J. C. Spence, who has written in the preceding pages on the neo-natal period in a masterly manner. The introductory sections on heredity (by E. A. Cockayne), growth and development, peculiarities of disease in childhood and clinical methods in paediatrics (by A. G. Maitland-Jones), and on the care and management of the infant and child (by K. Tallerman and A. Rose), are all very well done, while contributions on the State and child (by G. A. Auden) and on infantile mortality (by E. W. Hope and R. E. Bell) strike a useful note to remind readers of the wider implications of paediatrics. In about seventy pages Dr. Tallerman has packed an amazing amount of information on infant nutrition, which is dealt with on modern lines and could scarcely be bettered. Dr. Reginald Miller writes on rheumatism, and it is excellent to have this expert's views collected and presented in his own well-known style. The diseases of the blood and blood-forming organs are authoritatively dealt with by Sir Humphry Rolleston, and no doubt the Birmingham school will seek to enlarge and modify some of this in subsequent editions in light of the recent work conducted there. The disorders of the ductless glands are well described and illustrated, but the picture of a cretin at the age of 3 should be replaced by that of an infantile sufferer, since it is at this younger age so important to recognize the condition if full cure is to be achieved. Volume ii (in addition to the section on the blood already mentioned) is largely taken up with sections on the respiratory, cardiovascular, genito-urinary, and nervous systems. These are adequately dealt with, and the congenital disorders of the heart are made much clearer than usual by K. D. Wilkinson's intelligible descriptions and illustrations supplied by Maude Abbott. The surgical disorders of childhood are dealt with in close conjunction with the medical diseases with which they are associated, and the surgical editor is to be especially congratulated on the skill with which this has been carried out and on the broad outlook thus obtained. Only a few of the authors and sections have been mentioned here, and this must not be taken to mean that others are less worthy of notice. In particular, the contributions by Professor Parsons himself are of that clear and admirable quality which is to be expected from him. On coeliac disease he is thoroughly at home, and has produced a scholarly monograph in a dozen pages. To sum up, it may be said that if a new textbook of paediatrics is really required there could scarcely be a better production. The index, running to nearly ninety pages, is excellent, the illustrations throughout are well produced, and a radiographic appendix contains a series of good photographs. As works of reference, especially in view of a bibliography at the end of each section, these two volumes will be found very valuable.

[1] *Diseases of Infancy and Childhood*. Edited by L. G. Parsons, M.D., F.R.C.P., and Seymour Barling, C.M.G., F.R.C.S. Two volumes. Oxford Medical Publications. London: H. Milford, Oxford University Press. 1933. (Pp. xxxvii + 1,798; illustrated. £4 4s. the two volumes.)

The appearance of a tenth edition of *Holt's Diseases of Infancy and Childhood*,[2] revised by Dr. L. EMMETT HOLT, jun., and Dr. RUSTIN MCINTOSH, challenges comparison with the new work, and from this it emerges very well. The two new authors are to be congratulated on the skill with which they have retained so much of the valuable original matter while including so much modern material. Here also an extensive bibliography renders the book a most useful work of reference, and the Johns Hopkins school of paediatrics has a worthy successor to the original authors (Holt and Howland) in the person of Edwards A. Park, who, it is stated, has read over and criticized much of the present edition. It contains much new work, and especially on disorders of nutrition and diseases of the blood and of the nervous system it is thoroughly up to date. Dr. Emmett Holt, jun., has performed his filial task in a manner which will maintain the great reputation his father's book has won.

[2] *Holt's Diseases of Infancy and Childhood*. By the late L. Emmett Holt, M.D., and J. Howland, M.D. Revised by L. Emmett Holt., jun., M.D., and Rustin McIntosh, M.D. Tenth edition. London and New York: D. Appleton and Co. 1933. (Pp. xix + 1,240; 205 figures. 42s. net.)

PATHOLOGICAL ANATOMY

The tendency of modern writers is to combine the two subjects of pathological anatomy and pathological physiology; many of the later textbooks of pathology have this character. There is still room, however, for works in which the anatomical standpoint is adhered to according to the old model, and Sternberg's Pathology[3] is one of the best examples of this type. The work is a direct descendant of Birch-Hirschfeld's textbook; this was recast by Ribbert about twenty years ago, and the revised book was immediately recognized as one of outstanding merit, and has since always been referred to as "Ribbert's Pathology." It maintained its position for many years without revision, but latterly was in danger of falling out of circulation. It was felt by the publishers that this would be a matter for regret, and accordingly they approached Professor Sternberg with a view to the issue of a new edition. Professor Sternberg undertook the revision, which he completed in 1927. He found it necessary to rewrite much of the material, but an endeavour was made to preserve the general plan and character of Ribbert's work unaltered. The book at once resumed its position as one of the leading textbooks on the subject, and a second edition has now been called for. In this, Professor Sternberg has brought the subject up to date and has added a large number of illustrations, many of which are photographs of unusual excellence. At the same time the general features of Ribbert's book have still been retained as far as possible, and readers of Ribbert will be familiar with many of the illustrations of the original work.

Textbooks on pathological anatomy exhibit a close family likeness, and it is often difficult to point out in what particulars an individual work differs from its

[3] *Lehrbuch der Allgemeinen Pathologie und der Pathologischen Anatomie*. Zweite, vollstandig umgearbeitete auflage. Von Dr. C. Sternberg. Begründet von Professor H. Ribbert. Berlin: Julius Springer. 1933. (Pp. 650; 759 figures. RM.38; Geb., RM. 39.80.)

contemporaries, and what are its particular claims. This appears to have been felt by the author, for he states in his preface that he had some doubt, considering the number of published works on the subject, whether another was required. Sternberg's Pathology is, however, a serviceable book. It is very complete and accurate as regards the information it contains, has the advantage of being of moderate size, and is written in a manner which renders the subject-matter readily assimilable. The descriptions are direct and concise, and free from discursiveness; they leave a vivid impression, and essential features are readily grasped. On the theoretical side also the author shows great judgement; here again essential points are clearly and briefly indicated, to the exclusion of all that is of doubtful value. The publishers have done well to revive this standard and authoritative work.

CRIME AND THE STATE

Penal reform has made strides during the last quarter of a century; there are even signs that its advance has been in some ways rather more rapid than is altogether desirable. Fewer people have been sent to prison, sentences have been shorter, and the conditions of imprisonment have been much improved. Probation has been increasingly used, especially for young offenders. On the other hand, public interest of recent years has been focused more and more closely on crime, and the impression has grown up that crime is far more prevalent than it really is. For this state of affairs it is impossible for the Press to escape responsibility. The popular newspapers make much of their profit out of reporting crime news in a sensational manner, and it is largely due to this immoral practice that crime has become romanticized and over-emphasized. As E. R. and T. CALVERT show in their interesting study,[4] the increase is far less in numbers than in popular interest. Unfortunately, there is a tendency to blame the reforms of this century for such increase in crime as there has been, and to complain that the treatment of crime has lost its deterrent effect. The task of penal reform is most complicated and heart-breaking, and the reformer probably meets more determined opposition than he would in any other field. The Calverts have attempted to examine the whole question critically in order to permit a clearer understanding of the problem. They have written their book in a live and interesting way. Books on reform are interesting in proportion to their content of facts as against theories and opinions, and the fact-content of this volume is exceptionally high. It is no small achievement to be able to compress into three hundred pages of large, clear type a survey of the reasons for punishment in general and of the present state of crime and criminal procedure, a critical essay on the prison system, and a marshalling of the chief arguments against corporal punishment and the death sentence. The Calverts conclude that the present system offends in many ways against science, reason, and humanity.

"A system which sends 20,000 people to prison every year not for crime but for poverty; which punishes people for physical and mental abnormality and judges sanity by a legal definition nearly a century old; which retains corporal and capital punishment; which seeks to train thousands of antisocial persons in citizenship by subjecting them to a prison regime which deprives them of the only conditions under which they can learn self-control; and which sets them free again by order of a judge who fixes the end of the sentence before the treatment has even begun; such a system is obviously still rooted in mediaevalism."

Moreover, these authors hold that the great reforms of recent years have been made in the right direction. They consider that in penal matters the nation stands at the cross-roads. The increase in crimes against property, largely due to post-war depression, has led to an ignorant demand for a return to old and bad methods. They see a paramount necessity for every citizen to understand the true facts about crime and to resist a stampede into measures which will only aggravate the great evils of the present. This is easily the best book on penal reform that has been published in the last year or two. It has been criticized, probably with justice, by those who actually have to administer the penal system as being destructive and unpractical. Nevertheless, it is necessary to understand an evil before a rational attempt can be made to deal with it, and the book abounds in constructive suggestions which, even if they are not within the realms of immediate possibility, should at least be kept in view as ideals.

Dr. W. A. WHITE is a psychiatrist of very long experience in dealing with insane prisoners in America. He indicates[5] that the problem in the United States has the same elements as in this country, but is much graver. He writes from the point of view of the psychologist—in fact, he describes the book as an essay on the wide topic of human relations, illustrated from the field of criminology. The result is that, although most of his argument is well founded, it is so largely general and theoretical that its appeal as a practical contribution to the problem must be very limited.

OPERATIVE SURGERY

In the third edition of Mr. E. W. HEY GROVES's textbook of *Surgical Operations*[6] some new sections have been included, and a number of illustrations have been redrawn or added. The book is designed for nurses and for medical students, and aims at presenting a simple account of general and special surgical technique. That it has reached a third edition shows that it has proved its use. The general plan remains unaltered, the operations described are those which the student and nurse will see performed frequently in any modern hospital, and the aim of the author has been to make their purpose intelligible as well as to describe their steps in order. There are a few additions which seem worth suggesting. A description of the citrate method of blood transference might be included in the paragraph on blood transfusion in view of its common use and simplicity. The only method described is that by means of the paraffined cylinder. Some further information might advantageously be given about the use of the diathermy knife, and a reference be made to it in connexion with brain surgery; there is no reference to the use of the current for haemostasis. It may not be the author's custom to perform gastro-enterostomy in cases of perforated gastric and duodenal ulcer, but mention might well have been made of it in view of its frequent practice. Special sections are devoted to general technique and sterilization and to the after-treatment of abdominal operations, and at the end of the book there is an appendix of illustrations of instruments.

The amount of surgical knowledge which is expected by the Examining Boards who control the registration of nurses is considerable. The standard which should be

[4] *The Law-breaker.* By E. Roy Calvert and Theodore Calvert. A Critical Study of the Modern Treatment of Crime. London: G. Routledge and Sons, Ltd. 1933. (Pp. xiv + 294. 7s. 6d. net.)

[5] *Crimes and Criminals.* By William A. White, A.M., M.D. New York: Farrar and Rinehart. 1933. (Pp. viii + 276. 2.50 dollars net.)

[6] *Surgical Operations.* By E. W. Hey Groves, M.D., B.Sc., M.S., F.R.C.S. A textbook for students and nurses. Third edition. London: H. Milford, Oxford University Press. 1933. (Pp. 263; illustrated. 18s. net.)

expected is a matter on which opinions differ ; as requirements stand to-day the nurse needs a textbook of this kind if she is to acquire a sufficiency of knowledge during her theatre training. Mr. Hey Groves has done the difficult task of simplification well, and the book deserves its popularity.

DRUGS IN INDIA

In compiling so thorough a work of reference as his *Indigenous Drugs of India*[7] Lieut.-Colonel CHOPRA has thought fit to consult numerous works—some of them now difficult to obtain—and to embody the results of the last ten years' research on this subject, as carried out by him in the Calcutta School of Tropical Medicine. The result is of considerable interest. In the first fifty pages of his book he deals with the cultivation of plants in India, its medicinal exports and imports, drug adulteration, and the important problem of what economies might be effected by the use of indigenous drugs of proved value. As the Hindu, Ayurvedic, and Mohammedan systems of medicine appear to have made no progress in the last 1,500 years, the author urges the testing of the more promising of their innumerable preparations by modern scientific methods. It is of interest to note here that such methods have, with few exceptions, proved the drugs so far tried to be valueless. In Part II he deals with the Indian drugs which are of some value, and gives good accounts of our knowledge of such important ones as the aconites, the cinchona derivatives, digitalis, ephedra, cocaine, and opium, etc. Part III comprises a list of drugs which have been used in indigenous medicine—of the value of which little or nothing is known—and includes three pages of the names of drugs recommended for snake bite, many of which have been found by work in the Bombay Research Laboratory to be useless. Six pages are devoted to animal products. We note, however, that rhinoceros urine, the sale of which as a specific for rheumatism furnishes a considerable income to the Calcutta Zoo, has been omitted.

Notes on Books

The Swelling of Proteins and Allied Phenomena[8] is a volume of 124 pages issued by the International Society of Leather Trades' Chemists, which contains the papers read at a conference of the British section of that body last year. The volume comprises ten papers, all of which are of a high standard. Among the contributors are Professor Donnan, Mr. Adair, and Dr. Dorothy Jordan Lloyd. The contributors deal with some of the most difficult problems in colloidal chemistry, and it is interesting to find that definite conceptions regarding the nature of imbibition are gradually being formed. These hypotheses are based on schemes which depict the way in which the polypeptide chains of proteins are packed in gels. The matters discussed are of more immediate concern to the leather industry than to medicine, but they are also important to all who are interested in the problem of the structure of living protoplasm.

The *British Guiana Medical Annual*[9] has reappeared, and its twenty-fifth issue is dated 1932. It is issued by a committee of which the local Branch of the British Medical Association appoints a majority of members. A portrait of Dr. E. D. Rowland, the founder of the *Annual* and a most distinguished member of the British Guiana Medical Service, is reproduced as a frontispiece, with a short biographical note. The contents of the present issue include a record of the *Transactions* of the Branch in chronological order for the years 1925–32, the last three years being dealt with in fuller detail. The bulk of the volume is occupied by clinical articles. In one contribution the development of leprosy work in the colony is traced during the past six years. The range of the topics in this issue indicates the progressive nature of clinical practice and scientific research in British Guiana..

The approach of the holiday season has brought us two books which will be of interest to a good many members of our profession. *The Fisherman's Vade-Mecum*,[10] by G. W. MAUNSELL, is truly an encyclopaedia of fishing for salmon, sea-trout, trout, and pike, compiled from notes and the experience of a practical fisherman and arranged in a very convenient way. It is full of valuable and useful "tips," and should be in every fishing library. *The Angling Resorts of Scotland*,[11] by W. ROBERTSON, is a useful guide to fishing in Scotland. It is conveniently arranged, with a summary of the lochs and streams and particulars of the fishing hotels.

Classified Doses of the British Pharmacopoeia,[12] by B. L. STANTON, is a brochure containing the official doses, a list of the standardized preparations, and the strengths of the galenicals, etc., as given in the new *British Pharmacopoeia*.

[7] *Indigenous Drugs of India*. By R. N. Chopra, M.A., M.D. Calcutta: The Art Press. 1933. (Pp. 650. Rs.15.)

[8] *The Swelling of Proteins and Allied Phenomena*. International Society of Leather Trades' Chemists. 1933. (5s. 6d.)

[9] *The British Guiana Medical Annual for 1932*. Edited by G. H. Stevan, M.B., Ch.B., and A. G. Coia, M.B., Ch.B. Demerara: *Daily Chronicle* Office. 1933. (Pp. 187.)

[10] *The Fisherman's Vade-Mecum*. By G. W. Maunsell. London: P. Allan and Co., Ltd. 1933. (Pp. 474. 12s. 6d. net. ; leather, 17s. 6d.)

[11] *The Angling Resorts of Scotland*. By W. Robertson, M.D. Edinburgh and Glasgow: W. Hodge and Co., Ltd. 1933. (Pp. vi + 139. 2s. 6d. net.)

[12] *Classified Doses of the British Pharmacopoeia*. Compiled by B. L. Stanton, M.R.C.P. Melbourne: W. Ramsay Pty., Ltd. 1932. (Pp. 45. 2s. 6d.)

Preparations and Appliances

"LIGATURE SCISSORS"

Mr. C. ALEX. WELLS, F.R.C.S. (Liverpool), writes: The "ligature scissors" shown in the accompanying figure, which Messrs. Thackray of Leeds have made for me, are peculiar in that the blades are disproportionately long, which results in a bigger movement at the points than occurs at the rings. The shanks are made "bow-legged," and in between them a spool of thread is carried. This turns upon a spindle, which screws into a block fixed to one of the rings, and can be changed with ease.

The scissors are carried on the ring and little fingers of the operator's right hand, in the palm of which they lie, the points emerging between the forefinger and thumb. Some surgeons might consider it worth while having the spools wound with catgut, but personally I use the scissors only with thread, which is previously put through the autoclave. At the time of operation the scissors and thread are boiled up together with the other instruments, and, using a rustless steel pair, I have not found it necessary to resharpen the blade even after two years' constant use in all such perfectly clean and extensive operations as a radical breast, thyroidectomy, or gastrectomy. I cut the knots very short and have had no difficulty from the discharge of fragments, except in one thyroidectomy. The amount of thread contained in one spool is sufficient for any one of these operations.

A considerable economy in catgut is effected, but the real value lies in the time saved when the surgeon ties and cuts his own ligatures, more especially if a regular trained assistant is not always available. Surgeons who are accustomed to carry their own scissors and tie and cut their own knots will find the extra convenience of carrying the ligature material and the scissors together, in this way, well worth while.

STATE MEDICINE AND THE DANGERS OF BUREAUCRACY

A very outspoken address was delivered from the chair of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on June 23rd by Dr. WILLIAM BUTLER, the outgoing president. Dr. Butler retires from the service of the London County Council at the end of July under the rule as to the age limit. Before entering the Council's service in 1912 he was medical officer of health for Willesden. In recording the fact of his retirement, the Central Public Health Committee states that in the performance of his responsible duties Dr. Butler has rendered the London County Council able and devoted service.

THE REIGN OF LIBERTY

In the course of his address Dr. Butler said that the penetration of medicine into the domain of statecraft had resulted in the most profound modifications in the nature and conduct of its practice. Medicine to-day was the collective outcome of personal effort. It was a body of knowledge built up by individual pursuit and instructed practice, the issue of private investigations and findings open and free for all to adopt or reject. The fellowship of medicine had been, perhaps, the freest and most individualistic society that had ever arisen above the horizon of unintegrated anarchism. By no means structureless, it had no heresies or orthodoxies ; there was no upsetting view it might not accept under the persuasion of evidence, no tenet it would not forgo under the constraint of fact. Medical practitioners in the widest sense had been the freest and most private of persons, observing, thinking, and doing as they would. The great discoveries of medicine had been conditioned by the assumption of this freedom. Whatever the future might show, medicine as we had it to-day was the embodiment of knowledge and practice that had grown under this reign of liberty. Such liberty as had been enjoyed was very likely only possible because medicine for the most part had been administratively unorganized. Primitive and slightly organized societies permitted a freedom perforce denied to complex communities.

State medicine in respect of liberty was antithetic to private medicine. Medicine in our own time had been private, independent, and aloof from the regulations which civic control imposed, self-determined in a way and degree that no organized State could countenance. And State medicine grew apace. Already it had submerged great tracts of the private field, and threatened to claim the whole domain. Of less than a century's growth, it had in the last two decades advanced its dominion far across the private frontier. Under these conditions would medicine sustain its triumphs? Was there ground for misgiving that under the new regime the fruits of endeavour would wilt, the endeavour itself be stifled, originality of thought, initiative, and the opportunity for their exercise be overgrown by mechanized systems wherein man was replaced by an impersonal team and a soulless administration?

THE OLD ORDER AND THE NEW

In its earlier phase State medicine claimed only the part-time service of a practitioner. Whole-time appointments when they arose were confined at first to Government departments, and presently were extended to the larger local authorities. Whole-time medical officers multiplied, justified their existence, and extended their field of operations. Instinctively antagonisms developed between the old order and the new. The solidity of medicine was threatened, and the disruption into official and private branches had culminated at times in mutual distrust and recrimination. There had developed—by no means universally, but enough to be mischievous—a lack of tolerance by the newer for the older forms of practice. The private practitioner had felt this growth of hostility, this lack of sympathy with him in his difficulties, which were so very much greater in his wide field and with his limited resources than those of his official brethren, with their narrower outlook and State-supported reserves ; and he had not been helped by the exclusive turn which in relation to him had been given to the development of the State medical service. To take only one example, the tuberculosis officer was efficient in his restricted domain, but disease presented to him only one face, not the multiplicity of problems inevitably forced upon the practising physician, and he was apt, therefore, to direct the organization of medical services at the dictation rather of facility of administration than of an embracing outlook bringing in the essential unity of medical work. Dr. Butler made it plain that he was only taking the tuberculosis officer as an illustration of what was equally true in other departments.

Greatly as national health insurance practice had been criticized, and grave as might have been many of the defects in so wide an absorption into a State service of the poorest-paid work in medicine, the line of advance by inclusion of the established practitioners, rather than by the creation of new and independent officers to the exclusion of the existing profession, was in contrast to the development of the preventive side of State medicine ; these distinctive lines of development focused at this point, and State medicine would take its character from the line which at this point of bifurcation it followed. School medical inspectors, tuberculosis officers, medical officers engaged in maternity and child welfare could all be recruited by the part-time employment of medical practitioners otherwise engaged in the general and specialized practice of medicine and surgery. The benefits to the official and to the practising branch of the profession by this arrangement would be mutual, and though administration would be more difficult, that would be a small price to pay for attaining the solidity and freedom of medicine. Uniformity on these lines might not be practicable, but in large urban areas a reversal of current practice was called for if the State medical service was to be saved from degenerating into a bureaucratic system.

The recent transfer of Poor Law hospitals to the county and county borough councils marked a greater advance in the development of a State medical service than the mere transfer of institutions from one body to another would indicate, for it was an assumption by the authorities of responsibility for hospital provision to meet the needs of the community so far as they were not already met. What this might portend they were all too near to the event to judge, but State medicine in its institutional development had taken its place beside State education, and it was scarcely avoidable that in time it should become all-embracing. It was the more necessary that at this stage the bias of all that medicine needed for its fostering should be given in the trend of its prospective growth.

CONFLICTING TRENDS

Was that trend to be bureaucratic, or was there to be continued the freedom of medicine? That was the issue, and it was momentous. Centralization, subordination, control, a militarized machine, with its precision of action and red tape, was the alternative to the retention by medicine of its freedom to be developed on its own lines and by its time-honoured methods. In private medicine the practitioner found what he would, and proclaimed what he had found, though it were shattering to the politician, an affront to the ecclesiastic, or anathema to the head of a department. There was no room for such excursions in a bureaucracy. The official was no longer a doctor moved from within by the light of his profession. He was free to think what he liked, but not to say or to do. The opinions he formed on matters he was charged to deal with might be presented or suppressed, adopted without acknowledgement, or changed and mutilated without his concurrence or even his knowledge. No longer at liberty to follow his bent, to select and retain the particular field in which he loved to work, he would be directed by a will other than his own. His relation to the head of his department was not that of practitioner to

consultant. It was not necessarily that the chief officer usurped the claim of the worker to the fruits of his labour, or stole the kudos normally awarded to original accomplishment. The chief officer, like his subordinates, was the victim of a system imposed by the tradition of bureaucratic government. But medicine could be fitted into it only with loss. For its suitable organization medicine called for a different type of administrative machinery. Its association with the State might be as intimate as public requirements demanded, but its relations must be looser and freer from departmental regimentation. The most human of men, the practitioner, must be left with scope for the play of his human virtues and weaknesses. The perfection of a surgical technique within the limits of municipal appointment by monotonously repeating a single operation would be an achievement scarcely worth the sacrifice of surgical enterprise that had given surgery its astounding victories.

But there was a worse fate, Dr. Butler continued, than the bureaucratizing of the practitioners of medicine—namely, to be regimented under the heel of lay bureaucrats. Whatever the evils medicine might suffer in becoming officialized under a homogeneous and uniform organization, these were nothing compared with its fate should practitioners be mobilized and subordinated under the unsympathetic aegis of lay administrators. This was still to be apprehended as a possible ultimate danger. Doctors were instinctively disliked and distrusted by local authorities, whose outlook was primarily political. The uncompromising logic of facts presented with an impartial eye and leading to the unpleasant conclusions in which truth was prone to issue was incomprehensible and repugnant to such bodies. So far the instinctive struggle incessantly waged by medical officers had warded off the aggressive encroachments of the lay officials, but the struggle went on. The medical officer had a field wide enough for all his activities and coveted no man's vineyard. He was defensive only in his own domain, and sought to invade no foreign territory. If a battle was lost, he was shorn of his own ; if gained, he only retained it. All this was part of the bureaucratic process. This vicious trend might, of course, represent only the childish ailments which followed entry upon school life. But in the world organization of social activities everywhere to be observed isolated segregation was no longer possible. In the structuring of the new world now taking place it was necessary to see that it was so shaped that it left scope for the retention of individuality. It was so easy for those in administrative work to forget that they were administrators of medicine, and served primarily in its ranks. Dr. Butler ended by saying that he had spoken "as a bureaucrat to bureaucrats."

DISCUSSION

Professor MAJOR GREENWOOD, in proposing a vote of thanks, said that those present could hardly help sharing Dr. Butler's pessimism, though he himself thought there was a tinge of optimism in the prospect. Whenever he attended a comitia of the Royal College of Physicians he realized humbly that he as one of the "bureaucrats" could hardly rise to that serene atmosphere which pervaded such a body. And yet he took heart when he noticed that, although not actually the youngest person present, he would be regarded, even though in the early fifties, as one of the juniors. When all was said about "encroachments" of bureaucracy, it would still be true that probably the majority—certainly, if not the majority, a very large minority—were what the true-blooded Socialist rudely called "private adventurers." He found a parallel to the present transition in the state of the world at the time of the break-up of paganism. At that time really educated people of the ancient school—people like the Emperor Julian, for example—must have regarded the early Christian Church with a feeling akin to physical nausea, fearing that, with its disregard of all art and literature that really mattered, it might come to dominate the world. Yet, in the Middle Ages, there was reached the freest intellectual society that had ever existed in the world, the truth being that in a State where everybody was more or less an official of the Church one got a comprehension of all intellectual society, and attained really free thought. Was it not probable that a time would come, with the advent of the new generation, when everybody was more or less in the fold of bureaucracy, and within the bureaucracy itself there would arise the same intellectual differentiation as was found among the scholastic philosophers of the Middle Ages?

Sir WILLIAM HAMER, in seconding, contrasted the address with the presidential address to the Metropolitan Counties Branch of the British Medical Association to which he had listened earlier on the same day (*Supplement*, July 1st, p. 12). To a public officer Dr. Scott's address was the Turkey rhubarb, and Dr. Butler's the comforting jam!

A REPORT ON THE CLINICAL VALUE OF "EVIPAN"

(FROM THE ANAESTHETICS COMMITTEE, MEDICAL RESEARCH COUNCIL)

Encouraging accounts of the action of yet another barbiturate anaesthetic, "evipan," which came from German surgeons and anaesthetists, seemed to the Anaesthetics Committee to warrant a thorough clinical trial. Twenty-five thousand cases are reported from that country with one death attributed to "evipan." Accordingly, the offer of Bayer Products, Ltd., was gladly accepted, and supplies of the new drug were put at the disposal of the committee. In making use of these the committee had the co-operation of a number of anaesthetists, who have sent details of their cases and the opinions which they have formed. At St. Bartholomew's, Messrs. F. T. Evans and Rait-Smith ; at Guy's, Mr. R. C. Brock ; and at St. George's, Messrs. Douglas Belfrage and E. Landau have assisted in this way; and Dr. J. M. Barlet, Mr. C. Borland, and Mr. R. Jarman are others who, with Mr. C. Pannett, Sir Francis Shipway, Dr. C. F. Hadfield, and Dr. J. Blomfield, members of the committee, have furnished the material for this report. Evipan sodium is the sodium salt of *n*-methyl-C-C-cyclo-hexanyl-methyl barbituric acid, and dissolves freely in water, but the solution is stable only for an hour or two. Thorough pharmacological work carried out in Germany showed the drug to have a high therapeutic quotient in cats and dogs. In the former 25 mg. gave full anaesthesia, while the lethal dose was from 100 to 110 mg., a quotient of 4, and in dogs the quotient was 3.3. Parsons found that in the cat 0.1 c.cm. of a 10 per cent. solution caused a fall in blood pressure of 25 mm. Hg, with slow recovery, and apnoea for twenty seconds. After a total of 0.6 c.cm. of 10 per cent. solution artificial respiration was needed and the blood pressure fell until death. The anaesthetic action of the drug was rapid in onset and short in duration. It is not a volatile anaesthetic, but it is very rapidly detoxicated by the liver. Rabbits decompose half the narcotic dose within thirteen minutes. Traces of the unchanged substance are excreted in the urine. By-effects in animals were found to be slight. The blood pressure fell 15 to 20 mm. Hg. The pulse remained regular and full. Overdose caused cessation of the breathing, the heart continuing its beat for a considerable time after. Blood sugar was unaltered and other evidence of effect on body metabolism was of the slightest.

TECHNIQUE AND DOSAGE

When used for anaesthesia evipan is given intravenously. At first the drug was issued in ampoules each of which contained 3.5 c.cm. of 33⅓ per cent. stable solution in methyl-diglycol. Three c.cm. of this contained 1 gram of evipan sodium. Ampoules containing 7.5 c.cm. of distilled water but capable of holding 10 c.cm. were also issued, and before use 3 c.cm. of the concentrated solution were drawn into the syringe and expelled into the ampoule containing the distilled water. The evipan solution was sticky, and required, therefore, a larger needle than the ordinary hypodermic size. Now, however, the evipan is supplied in powder form in

ampoules to which the distilled water supplied in another ampoule is added. By aspirating and reinjecting once or twice a solution is obtained which passes easily through the ordinary hypodermic needle. This is inserted into a suitable vein of the arm with due antiseptic precautions. It is advisable to have the arm held steadily by a second person because of the twitching of muscle which often comes on early after injection has begun. The solution is run in at the rate of 1 c.cm. in fifteen seconds. Dosage is determined by the characteristics of the patient and the results noticed. Acting on a definite scale arranged according to body weight does not give satisfactory results. An average amount to produce unconsciousness is about 3 c.cm. A good plan, recommended by Lauber of Königsberg, who has had a big experience, is to make the patient count. When the counting ceases through sleep the amount that has been injected is noted, and the same amount is further added for a short operation, and twice as much for a long one. In elderly and feeble people, and those who have gone to sleep exceptionally quickly, only half the amount which produced sleep is added. Most patients are asleep in about one minute. There is often some twitching or jactitation, but often complete relaxation of the muscles of tongue and jaw occurs early, and care is needed to preserve a patent airway. Generally speaking, 10 c.cm. are regarded as the maximum dose. When it is desired to complete a longish operation under evipan only, the needle must be left *in situ* and a further injection made when the anaesthetic effect of the first is obviously wearing off. Used in this way as much as 20 c.cm. has been injected. There is, however, a fluctuation in the anaesthesia, and we do not see evidence of any advantage in the use of evipan for other than short operations—that is, of twenty minutes or so at the outside.

SYMPTOMS PRODUCED

A deep yawn just before the disappearance of consciousness is a common symptom. The great majority of patients fall asleep perfectly quietly. Twitching of face muscles is common, and there is sometimes jactitation of limbs. In one instance tonic contraction of many muscles and brief stoppage of respiratory movements were observed. The degree of muscular relaxation varies, but is rarely extreme or sufficient for an abdominal operation. The pupil is usually moderately dilated but active to light. In the early stages it is sometimes widely dilated. The conjunctival and, generally, the cornea reflexes have disappeared at the moment of fullest effect. Even then reflex movement at the start of operation has been seen many times. The eyelids are sometimes widely separated. The effects on blood pressure are slight. There is commonly a fall of about 20 to 30 mm. Hg, which is quickly recovered from. Respiration is often somewhat slowed, but there has been seen no serious depression except in one instance when, unknown to the anaesthetist, the patient, an elderly woman, had received a full dose of morphine and hyoscine before the evipan. The combined result was respiratory stoppage requiring, and removed by, artificial respiration and CO_2 with oxygen. It is inadvisable to give any sedative before evipan. No special preparation is needed, but it is of course desirable to have the stomach empty. Subjective symptoms as described by reliable patients are a feeling of quickly increasing lassitude which cannot be overcome and loss of consciousness in a few seconds. Experience shows, nevertheless, that it is best to wait two minutes after completing the injection before beginning to operate. The length of time of unconsciousness is usually about ten to twenty minutes after an average dose. After this time the patient can talk but is sleepy, and will drop off again if left quiet. When he finally wakes he remembers nothing after the first prick of the needle. As in the case of other anaesthetics there is considerable difference in the reaction of different persons to evipan, and the exact behaviour cannot be foretold. The patient may go to sleep with no apparent difficulty and the usual signs of anaesthesia be present, and yet there may be movement on incision to an extent demanding a supplementary anaesthetic. On the other hand, it often happens that merely 3 c.cm. give a perfectly satisfactory, though of course only a short, anaesthesia. Our experience does not corroborate the statement of Ernst that one can reckon almost always on half an hour's good anaesthesia. We are led to believe that in Germany the surgeon is satisfied with a narcosis which is not regarded as enough by most operators in this country. Certainly the German reports describe a more constant and sufficient anaesthesia than has been obtained here by the same dosage and technique.

CONCLUSIONS

It is obvious from what has been stated that evipan is not to be regarded as a basal narcotic in the sense that, for example, nembutal and avertin are. Its action is so evanescent that it cannot be employed, as are these drugs, for procuring a longish period of quiet or of unconsciousness before the administration of the anaesthetic proper, nor can it be used, as are the basal narcotics, to put the patient to sleep in his bed in order to avoid all knowledge of transference to the operating theatre. If it is used before another anaesthetic this must follow closely on the administration of the evipan, and as a preliminary, therefore, it is to be classed with nitrous oxide and ethyl chloride rather than with the basal narcotics. For those who like intravenous methods it is certainly an admirable means of inducing anaesthesia, all opinion agreeing as to the rapidity and pleasantness with which the patient becomes unconscious. Excitement or restlessness during induction have been seen only in unusually emotional subjects. After-effects also are of rare occurrence. It can be relied on for an excellent anaesthesia in minor surgery—that is, for short operations when the possibility of slight reflex movement is not a matter of great concern. It is true that often the anaesthesia is profound, and that by repeating the injection it can be prolonged; but it is not obvious that this is a better procedure than usual methods, such as gas and oxygen, for example. The recovery free from after-effects and the quiet induction make evipan a valuable agent in the case of persons gravely ill for whom a short anaesthesia is desired for any reason. There are many such instances when it would probably be preferable even to nitrous oxide. Two examples of this kind may be quoted from our series.

A man, aged 62, suffering from aortic regurgitation and arteriosclerosis, had amputation of the great toe for gangrene. He received 6 c.cm. evipan. Sleep was induced in half a minute. The operation took ten minutes, during which time the anaesthesia was all that could be required. After twenty minutes he woke up yawning and was talking a minute later. Half an hour later he fell asleep and slept for six hours.

The other example was a man of 36 years, extremely ill with empyema after pneumonia. He was regarded as unfit for a general anaesthetic. Nevertheless, it was decided to use evipan, of which 10 c.cm. were injected. Anaesthesia was good, and the operation, rib-resection, was completed without anxiety. The patient was fully awake after three-quarters of an hour, and suffered no after-effects.

A few trials have been made of the efficacy of evipan by the mouth. It is described as proving less efficient thus given than nembutal in the same circumstances. Nevertheless, two or three of the tablets in which it is provided for oral administration are a useful hypnotic, generally causing sleep in a short space of time. It is a useful agent with which to break a habit of sleeplessness.

At the annual general business meeting of Dr. Barnardo's Homes: National Incorporated Association, the report showed that 113,236 destitute boys and girls had entered the homes up to the end of 1932, and that 1,735 boys and girls and babies were admitted during that year—1,531 permanently and 204 temporarily. About 80 per cent. of the admissions came from the provinces and 20 per cent. from the metropolis. Almost every county was represented in this total of admissions. At the end of the year 8,420 children were in residence; 410 of the children are of the sick, crippled, or afflicted class, yet the death rate among the Barnardo family is remarkably low, only 3.37 per 1,000 in 1932, and this notwithstanding that the majority of the children when admitted had suffered from privation, malnutrition, or in some other way. There are several hospitals, hospital homes, and convalescent homes attached to the work, and during the year a new convalescent home was opened at Bognor Regis.

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THE UNIVERSITY OF LONDON

On June 26th, in the presence of a company representative of all branches of learning and of many nations, His Majesty the King laid the foundation stone of London University's new buildings. "She has waited long," said His Majesty, "for a home that she could truly call her own, and we all now rejoice to see the beginning of a finely planned group of buildings which will serve as headquarters for her far-reaching work and influence." This influence has indeed been far-reaching. To thousands it has been of that noblest kind expressed in Mr. Drinkwater's Graduation Song:

> In field or market-place or mill,
> Beneath a dear or alien Sun,
> We'll build a generation still,
> Of faith and honour here begun.

Even to those to whom the University of London has been no more than a relentless setter of questions, she has at least brought home realization of the difference between knowledge and half-knowledge. Perhaps, if we could know the lives of all the thousands who have graduated in this university in the 100 years of its existence it would not be the famous scholars and scientific investigators on her roll whom we should proclaim to have been her greatest glory, but men and women who lived and died unknown to fame, yet had been encouraged by the mere "examining body" to discover for themselves something of the beauty and the marvel of science and the humaner letters.

But most of us are helped by the external symbols of spiritual things and have lamented that the metropolitan university lacked any such embodiment. A Londoner visiting Oxford or Cambridge can admire without envy, for he may reflect that in these pleasant places towns have grown up around colleges, but London could never be a pendant to any university, however august. The Londoner's admiration of the University of Glasgow's buildings might be tinged with envy, for the site has been so chosen that, although teachers and students are undisturbed, the youngest of them, looking down on the great city, could not make the mistake of thinking that the town exists for the university. The new buildings of London University will not command so fine a prospect as does the University of Glasgow, but they will enjoy a reasonable peace, and those who work in them will be in no danger of forgetting that university life is but a fraction of human experience. Those who work there will, indeed, be a very small proportion of London's university population; to most the building must be not a work-place but a symbol. London's undergraduate teaching cannot, of course, be concentrated in any one building; in the future, as in the past, the most precious memories of student life will be of that best of education gained "in the argumentative walk or disputatious lounge: in the impact of young thought upon young thought, of fresh thought on fresh thought, of hot thought on hot thought: in mirth and refutation, in ridicule and laughter"; *those* memories will, for London graduates of our profession, hallow "Bart's," "Guy's," "The London," and other schools already old when the University was in swaddling-clothes. But, just as in an alumnus of Oxford or Cambridge, love of his college feeds loyalty to his university as representing something greater still, so to a London graduate the palace which is to be built in Bloomsbury should be a symbol and an inspiration of a greater loyalty. London University is the greatest federal university in the world; no other has to shoulder such varied responsibilities. In the past, men of good will, each emphasizing unduly this or that side of the University's work, have had differences of opinion which at times became so acute as to endanger the common cause. The new building is to be a symbol that those times of dissension are over; the pledge of a new age, or, perhaps, of the return of the golden age which Mr. Drinkwater's song exhorted London maids and London men to bring in again:

Magnus ab integro saeclorum nascitur ordo.

The part of the medical faculty in the development of London University has been large. There are at present more than 500 appointed and recognized teachers of the University in the faculty of medicine; no other faculty includes as many as 400. This generation has witnessed an immense development of medical teaching in London; the teachers will not suffer by comparison with their predecessors, and they enjoy material facilities undreamed of thirty years ago. Yet the position is not wholly satisfactory. It is still true that a large proportion of those who receive the whole of their institutional and professional training in the London schools never graduate in the University of London. It is even true that a sensible proportion of the students of that University who pass the second examination for medical degrees never graduate. We believe that this can be said of no other British university, and a difficult problem awaits solution—namely, how to increase the proportion of medical graduates without lowering the standard of the degree. It is common knowledge that the present medical curriculum, not in London only but throughout the British Empire, is proving a serious strain on both teachers and taught, and that the whole subject is under the consideration of a conference appointed at the close of last year on the initiative of the University of London. The membership of this conference, which includes representatives of the Universities of Oxford, Cambridge, and London, and of the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries, was given in our issue of December 10th, 1932. A special committee on medical education has also been set up by the Council of the British Medical

Association, and its interim report appeared in the *Supplement* of June 24th, 1933 (p. 286).

The problem under the consideration of these committees is a difficult one—namely, how to frame a curriculum which, while providing adequately for technical instruction, shall be fundamentally educational, in the highest sense of the word education, and capable of completion within a reasonable number of years. But, as anybody familiar with the history of the University of London will remember, only a few years ago the stage reached on June 26th seemed impossible of attainment. We may therefore reasonably expect, as well as hope, that the university problem which is of such interest to our profession will also be solved, so that London medical students of the future may partake more fully than now of the advantages of a university education.

HAFFKINE'S PLAGUE VACCINE

In September, 1896, plague broke out in Bombay, the starting-point in its invasion of India. At this time Haffkine was in India engaged in field trials of his vaccine for cholera. His services were secured by the Government of Bombay, and in October he commenced his studies on the bacteriology of plague. Within three months he evolved his method of preparing a vaccine, proved that it protected animals against inoculations of virulent cultures of *Bacillus pestis*, and demonstrated the harmlessness of his prophylactic to man by experiments on himself. The value of the vaccine as a means of individual protection was effectively demonstrated before long. About half of the inmates of a certain jail were inoculated, the remainder being kept as controls. Plague invaded the jail, and of 148 inoculated prisoners only two contracted the disease, both of whom recovered; while in 172 uninoculated there were twelve cases with six deaths. The publication of these figures caused so widespread a demand for inoculation that manufacture on a large scale was begun, with the result that to-day Haffkine's vaccine holds a primary place among plague preventive measures in India, where, in all, some thirty-six million doses have been issued for use. In his memoir on the subject, Lieut.-Colonel J. Taylor[1] points out that many years of observation and experiment have confirmed the value of the methods originally adopted by Haffkine, and, although changes and improvements have been made in details, the principles laid down by him have not been departed from in any essential. The author analyses records relative to more than 300,000 persons exposed to plague risk, of whom over 40 per cent. were inoculated, and concludes that Haffkine's vaccine gives approximately a fourfold protection against attacks of plague and an eightfold protection against death.

Less striking results than these were obtained during the Java epidemic of 1920–3. Here the procedure was to inoculate half the members of each family under observation in such a way as to provide for each protected person an uninoculated control, so far as possible of the same age and sex. Some such alternate system, Dr. de Vogel[2] asserts, must be adopted in order to obtain figures which are strictly comparable. The Java records deal with nearly 80,000 persons, of whom approximately one-half were inoculated with Haffkine's vaccine. Owing to the impossibility of securing proper medical surveillance of all cases of febrile disease and the consequent uncertainty in diagnosis, these statistics include only cases of plague which ended fatally, the diagnosis being determined by spleen punctures made after death. The mortality in the inoculated was one-half of that in the unprotected, a result considered disappointing. The epidemic in Java was due to a concurrent epizootic in rats, and there was no evidence of any cycle of infection from man to flea and flea to man. Consequently, it is contended, mass inoculation failed to control the disease, for the source of infection was unaffected, and the epidemic resumed its march when the protection conferred by the vaccine diminished or disappeared. Moreover, mass inoculation is less practicable in Java than in some other countries, for, owing to the climate, plague continues unabated throughout the year, and so there is no quiescent period when organized inoculation on a large scale might profitably be undertaken. For these reasons it was considered inadvisable to harass the population any longer by inoculation propaganda. Instead, all energies were concentrated on measures calculated to expel rats from houses and huts (for the local rat responsible for human plague is dependent on man for shelter), with results which are stated to have been highly successful.

The importance of the man-flea-man route of infection is emphasized by Dr. Ricardo Jorge[3] in the course of a fascinating dissertation on the history and epidemiology of plague. Dr. Jorge argues that in epidemics such as the Black Death this method of spread played an important and often even an exclusive part. Everyone in old times, he points out, whatever his social rank, was surrounded and infested by *Pulex irritans*, and so infection would easily be transmitted from person to person. Doubtless this statement is true as regards insect prevalence, but it might equally be employed to support the contention that in such conditions rat plague would be transferred to man all the more readily. *P. irritans* is most catholic in its tastes, and animals in flea-infested dwellings can be found literally swarming with human fleas which parasitize their alien hosts with the utmost content. The man-flea-man route probably serves to spread the disease in certain circumstances, but whether an epidemic of bubonic plague could maintain itself in man without an existing reservoir of infection in animals is open to question. Whatever our views on this particular point may be, Dr. Jorge's scholarly paper is well worthy of study.

[1] Taylor, J.: *Indian Medical Research Memoirs*, March, 1933.

[2] De Vogel, W. T.: Office International d'Hygiène Publique, March, 1933, p. 451.

[3] Jorge, R.: Ibid., p. 425.

CANCER OF THE SKIN

A great deal has been learnt about the aetiology of cancer by a study of cancer of the skin. Here the disease can be recognized at a comparatively early stage, and a direct relationship can be traced to influences which appear to have predisposed to malignancy. One of the most important of these predisposing influences is occupation, shown particularly in workers exposed to soot, tar, radiations, and mineral oil. In the forms of skin cancer associated with these occupations it has been comparatively easy to prove the dangerous character of the patient's work, but in other types of skin cancer no obvious relationship to occupation has been discernible by ordinary clinical methods of inquiry. It is interesting to learn from Dr. Gretta Thomas's report on cancer of the skin, recently issued by the Ministry of Health,[1] that a careful study of occupation in relation to skin cancer has not revealed any new environmental conditions which predispose to malignant disease. In the majority of cases of cancer of the skin there is no evidence of the operation of a carcinogenic agent in the industrial environment. Next to the influence of occupation on the development of cancer might be placed the knowledge we have gained from skin cancer about the general structure of tumours in their early stages and the relation of benign to malignant tumours. With cancers of internal organs we have no means of finding out what was the size or shape of a tumour a few weeks or months before its removal. It is extirpated at a certain stage of its development: its early characters can only be inferred from the clinical history. Such observations as are possible all go to show that very many malignant growths develop in pre-existing non-malignant tumours or in injured or diseased tissues. With cancer of the skin the evolution of the disease can be watched and measured. One of the subjects to which special attention was directed in the recent Ministry of Health study of skin cancer was the relation of malignant diseases to preceding lesions, and the evidence collected provides very many examples of the development of cancer in previously existing non-malignant lesions of the skin. We have mentioned two aspects of the cancer problem which have been clarified by the study of skin cancer, but there are other features of the growth of epithelial skin tumours which appear contrary to expectations. For instance, in cancer of the lip there is a very peculiar difference in sex distribution. Cancer of the lip is about twelve times as common in men as in women, and the percentage of deaths from lip cancer to the total for cancer in England and Wales is 1.1 for males and only 0.1 for females. Now cancer of the lip is twenty times as common in the lower lip as in the upper, but when the upper lip is affected it is surprising to find that the susceptibility is reversed. What factor is there which can be responsible for this unequal distribution of cancer of the lip in the two sexes? It has been suggested that the minor injuries inflicted during shaving or irritation from sessile clay pipes may be contributory factors, but such explanations seem very inadequate. This sex distribution of lip cancer is unexpected and odd, but not the only instance of the unexpected in tumour pathology. Others may be found in the detailed survey of cancer of different regions of the body which forms the main content of the Ministry of Health report. The figures and opinions are based on an analysis of 503 cases of epithelioma of the skin treated in the General Infirmary at Leeds during the period 1911 to March, 1931, inclusive. The method of investigation adopted was as follows. The names of all patients with skin cancer appearing in the histological reports were first collected and then looked up in the clinical records. Most of the patients living within about a twenty-mile radius of Leeds were personally inquired for and interviewed, or in the case of those who had died, relatives and neighbours were questioned. Other patients living further away were traced by letters to them or their doctors. The carefully tabulated information provided by Dr. Gretta Thomas is a valuable contribution to the literature of skin cancer, and will be found useful for reference purposes.

[1] Ministry of Health Reports on Public Health and Medical Subjects. No. 70. A Report on Cancer of the Skin. By Gretta M. Thomas, M.D. H.M. Stationery Office. (2s. net.)

THE DIABETIC MOTOR DRIVER

A. Norgaard[1] makes a useful contribution to knowledge in discussing the conditions under which a diabetic should be granted or refused a driving licence. In some countries the problem is of considerable numerical importance. In Denmark, for example, the number of diabetics has increased enormously since 1890: in the five-year period 1890–4, only 86 patients were admitted to hospitals in Copenhagen for this disease, while the corresponding figure for the five-year period 1910–14 was 710, and for the five-year period 1925–29 it was 2,728. At present that country probably has about 5,000 genuine diabetics between the ages of 15 and 65, and among them there must be at least 3,000 receiving insulin. Of two conditions to which the diabetic is liable—coma and insulinism—the first is not likely to cause motor accidents because it develops so gradually. Insulinism, on the other hand, may supervene with catastrophic speed. Apart from its more pronounced signs such as giddiness, tremor, diplopia, weakness, and convulsions, there is another symptom-complex to which Professor Sonne has recently drawn attention. The patient becomes dazed, does the most extraordinary things, wanders aimlessly about without knowing where he is, and lacks initiative, although his outward appearance may present nothing remarkable. Sonne observed transient psychic abnormalities in 54 per cent. of his insulin-treated out-patients, and Norgaard has observed insulinism in 220 out of 777 diabetics. It is also significant that insulinism occurs more frequently outside than inside a hospital, being often provoked by the exertions and irregularities of daily life. Some diabetics are more subject to the condition than others, and while some are warned by prodromal symptoms, others are not. Hence Norgaard's conclusion that insulin treatment would be an indication for withholding a driving certificate. Diabetics not receiving insulin are at this stage of the disease comparatively safe as motor drivers. But the overwhelming majority of young diabetics must sooner or later take insulin, and it may well be a mistaken kindness to grant a driving licence to a young diabetic who wishes to earn his living as a motor driver; for, later in life, when it may be difficult for him to change his occupation, the advent of the insulin stage of his diabetic career may, by disqualifying him for motor driving, penalize him seriously.

[1] *Hospitalstidende*, May 18th, 1933, p. 17.

SIGHT-SAVING CLASSES AND THE CLASSIFICATION OF BLINDNESS

The International Association for the Prevention of Blindness has issued two reports that are of moment.[1] The report of the annual meeting, held in Paris in November last, is a document of fifty pages devoted wholly to the consideration of sight-saving classes or myope classes. There are printed papers read by Professor Pierre Villey of the Valentine Haüy Association ; Mr. N. Bishop Harman of London (whose paper was published in the *Journal* on January 28th last) ; Mrs. Winifred Hathaway of the National Society for the Prevention of Blindness of the United States ; Professor Martin Bartels of Westphalia ; Dr. Auguste Dufour of the Central Swiss Union for the Blind ; MM. Redslob of Strasbourg and A. Monbrun of Paris. Each of the papers dealt with the experiences of the authors in the working of these classes in their own countries. They therefore form a representative and highly informative body of evidence as to the scope and value of these classes. It was announced that at long last the French Minister of Education had authorized the opening of a class in Paris. All these papers have been translated into English. At the general assembly of the Association held in Madrid in April last the main subject of consideration was the classification of causes of blindness. Papers were read by Professor Marquez of Madrid, Mr. Bishop Harman, and Dr. Marx of Rotterdam. There was a discussion, in which Dr. A. J. Ballantyne of Glasgow took part. The report of this meeting has been published, the papers being in French. It shows that there are two schools of thought displayed in this matter. One, as exemplified by Scottish and North English schemes, advocates a highly elaborate schedule which seeks to cover an enormous mass of detailed information ; and the other, advocated by Mr. Bishop Harman, and adapted for use by the London County Council and some other councils, which seeks to bring the different causes of blindness into a minimum number of categories. The assembly appointed a commission to examine and report on the problem of the classification of the causes of blindness, with Dr. Maziny (Egypt), Professor Marquez (Spain), Dr. Park Lewis (U.S.A.), Professor de Lapersonne (France), Mr. Bishop Harman (Great Britain), Dr. Marx (Holland), and Professor Van Duyse (Belgium) as its members.

IMMUNIZATION AGAINST TETANUS

In a recent communication, E. Sacquépée[2] draws attention to the occasional failures that are encountered in the attempt to prevent tetanus by the injection of antiserum. It is known that the effect of the serum wears off in about a fortnight, and that if tetanus bacilli are still present in the wound they may give rise to disease. In such cases tetanus develops after a long incubation period, often several weeks or months. In order to prevent the development of this late tetanus Vallée and Bazy, during the late war, recommended and successfully practised the active immunization of wounded persons by the injection of iodized toxin, over and above the usual passive immunization by the injection of serum. Since that date it has been found that the treatment of toxin with formol gives rise to a non-toxic substance which still retains its antigenic activity. This so-called anatoxin has been shown to be of value in the immunization of horses and of laboratory animals. In 1931 the use of this anatoxin was officially recommended for the prophylactic treatment of wounded soldiers in the French Army. The directions were that every wounded man in whom the development of tetanus was to be feared should be inoculated subcutaneously with 1.5 c.cm. of anatoxin, followed some minutes later, and at a different site, by a suitable dose of serum. A second dose of anatoxin should be given twenty days, and a third thirty days later, 2 c.cm. being injected. To judge the efficacy of this treatment the author has tested the antitoxin titre of the blood serum of 240 patients six months after the injury. Taking one unit of antitoxin as that amount capable of neutralizing a quantity of toxin corresponding to 1,000 lethal doses for a 350-gram guinea-pig, it was found that the distribution was as follows: 1 serum contained 1 unit ; 6 serums contained 2/3 U. ; 120 serums 1/5 U. ; 68 serums 1/15 U. ; 10 serums 1/20 U. ; 22 serums 1/25 U. ; 4 serums 1/30 U. ; 3 serums 1/40 U. ; 3 serums 1/50 U. ; and 6 serums less than 1/50 U. per c.cm. It is not known how much antitoxin must be present in human serum to prevent the development of tetanus, but there are grounds for believing that the quantities found in these serums do represent the existence of a definite degree of immunity. The author concludes that anatoxin vaccination can be efficaciously combined with preventive serum treatment.

HOSPITAL POLICY AT BARROW

In this week's *Supplement* (p. 20) will be found an account of the dispute between the staff and the council of the North Lonsdale Hospital, Barrow-in-Furness, which has led to the threatened resignation of the former. The staff, in accordance with the Hospital Policy of the British Medical Association, wishes to secure for reward of professional services a percentage of the money paid to the hospital under a contributory scheme: the council of the hospital is unwilling to grant its request. Since its inception in 1908 the Hospital Policy has undergone considerable modification in the light of increasing knowledge and experience, but its fundamental principles have found ample vindication in the rapid change in hospital development during the last few years. It is upon a recognition of this change that the Policy is based. In the words with which it opens:

"Among the social changes of recent years none is more remarkable than that which has taken place in our hospitals. Originally charitable institutions for the general treatment of the very poor, they have become centres of highly specialized and complex service to which four-fifths of the population look for help and where the community as a whole claims as a right services which can only be rendered by a great organization or its dependent branches. Voluntary hospitals have become increasingly the hospitals of the worker and his dependants."

While the hospitals confined their attention to one class of the community, the poor, the profession gladly gave its services without thought of payment or reward. But to-day it supplies a wider, more specialized, and

[1] Association Internationale de Prophylaxie de la Cécité, 66, Boulevard S. Michel, Paris, VIe.
[2] *Paris Méd.*, June 3rd, 1933, p. 491.

more technical service to the vast majority of the community, including those who can contribute directly or by insurance to its cost. The medical profession can no longer offer gratuitous service to men and women who neither need nor wish for charity. The contributory schemes, which are growing with extraordinary rapidity, are organizations not of the poor but of the provident. To become a contributor is to make a wise provision on an insurance basis for the possible contingency of illness requiring hospital treatment. The medical men and women upon whose skill and knowledge the hospital provision depends are—as a direct payment for their services—entitled to a proportion of the payments made by a contributory scheme in respect of its members. In Barrow-in-Furness the council of the North Lonsdale Hospital is unwilling to make this provision for its medical staff. In this industrial area approximately 80 per cent. of the population falls within the ordinary hospital limits of income. The workman who pays 2d. a week is entitled to full hospital facilities. No income limit is imposed. As is clearly set out in the detailed statement of the present position in our *Supplement*, the local profession has been forced by the hard circumstance of dwindling private practice to recognize that it is giving in hospital, without recognition or reward, a service that it formerly gave in private practice in return for reasonable fees. The Association suggests that of the total sum paid 20 per cent. should pass to the staff fund for payment of the doctors who do the work, but the Barrow-in-Furness Division, not unmindful of local and national depression, has shown its willingness to accept a proportion as low as 1 per cent., provided the fundamental principle is conceded. This dispute is of more than local importance, and members of the Association may well await the outcome of the present conflict with interest and concern, for nothing is more certain than that ultimately the interests of many who are now but observers will be profoundly affected. The Council of the Association has been acquainted with the details of the position, and has intimated its full support of the Barrow-in-Furness Division.

BRITISH POST-GRADUATE MEDICAL SCHOOL

As briefly announced in our last issue the Chancellor of the Exchequer will lay the foundation stone of the British Post-Graduate Medical School buildings at the L.C.C. Hospital, in Ducane Road, Hammersmith, on Monday, July 17th, at 4 p.m. This ceremony marks a further stage in bringing into practical operation the scheme recommended by the Post-Graduate Medical Education Committee appointed by Mr. Neville Chamberlain in 1925 and presided over successively by Mr. Chamberlain and Mr. Arthur Greenwood. The scheme is founded upon the association of the new medical school with a public hospital administered by the London County Council. The Government has agreed to contribute a maximum of £100,000 for the building and equipment of the school, and the London County Council, which is co-operating whole-heartedly in the project and without whose assistance the scheme would be impossible of fulfilment, has agreed to incur an equivalent expenditure on such developments and adaptations of the hospital as are found to be necessary at the present time in view of its forthcoming association with the school. The Government has also undertaken to provide in due course for annual grants towards the maintenance of the school as a recognized school of the University of London. The new teaching hospital will doubtless attract medical men from all parts of the world, and especially from the British Dominions and Colonies over-seas, and it should make London one of the chief centres in the world for post-graduate medical training and research. London House, the hall of residence for Dominion students, will enable those fortunate enough to be admitted to it to enjoy the advantages of residential collegiate life. The chairman of the governing body of the school is Sir Austen Chamberlain, who succeeded the late Viscount Chelmsford on the latter's election as Warden of All Souls' College, Oxford.

ANATOMY OF HEADLINES

Writing in praise of Dr. Johnson's real humanity and gentleness of disposition, Boswell said: "I shall never forget the indulgence with which he treated Hodge, his cat." Whether Hodge felt grateful is not known. But editors are often touched by the indulgence of long-suffering readers. Not long ago some sharp things about the illegibility of doctors' handwriting appeared in this column. They might have given offence, but so far only faint chuckling sounds have been heard. From handwriting to headlines is but a short step. Readers occasionally ask whether anything can be done to unload the titles of original articles and clinical memoranda in medical journals. The answer is that much can be done, and is done every week. "Observations upon the Inhibitory Influence of Intravenous Injections of an Aqueous Extract of the Gasserian Ganglion upon the Course of Generalized Gas Gangrene: with Report of One Case: Recovery: Death," has a comprehensive air, and may be (in its author's opinion) a snappy little heading; and yet a stroke or two of the blue pencil will make it more sightly and no less explicit. In former days the headlines of the Annual Meeting papers looked like memorial tablets on cathedral walls, and the change to a simpler form called forth no protests. On the other hand, a title can err on the side of brevity. "Burns" *tout court* may be all very well for a surgical monograph of 800 pages (or for a work of literary criticism), but is perhaps not precise enough at the top of a therapeutic note of 400 words. There are also embarrassing ambiguities which a vigilant sub-editorial eye will detect in time: for example, "Haemorrhoids from the Patient's Point of View." In regard to headlines for letters, we are grateful to the doctor who asked if the recent correspondence on "Genesis of Gallstones" is to be followed by another on "Exodus of Ditto."

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been prepared and will be ready shortly; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who desires to have one or all of the indexes can obtain what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1.

CENTENARY OF THE BRISTOL MEDICAL SCHOOL

The centenary of the Bristol Medical School was celebrated by the University of Bristol on June 30th and July 1st. A history of the school, written for this occasion by Dr. George Parker,[1] relates its origin from the fusion of several private schools of anatomy, of which the first was started in 1744, seven years after the opening of the Bristol Infirmary. In 1815 the Society of Apothecaries of London was authorized by Act of Parliament to examine and license all new apothecaries, as the general practitioners were called at that time, and to prosecute unqualified apothecaries. This Act required that candidates for qualification should attend at proper lectures and clinics. The Apothecaries' Society gave "recognition" to some of the lecturers in Bristol as early as 1828, and by 1831 a medical student could attend the whole course in medicine at Bristol, and obtain the licence of the Society of Apothecaries without any period of residence in London. This attitude of the Apothecaries' Society made provincial medical schools possible in England. The College of Surgeons (despite its title, "of England") strenuously opposed the provincial schools, insisting on attendance at a hospital of 100 beds in London or in certain Scottish or Irish medical centres.

Bristol formed in 1833 a very strong school by the combination of lecturers from various groups, urged thereto by Dr. Carrick. He was a Scottish M.D., senior physician at the Infirmary, and a man of great foresight and character. Carrick delivered the inaugural address at the opening of the school on October 14th, 1833. In this address he observed that now for the first time instruction could be given in Bristol in every department of medical science, and he expressed the hope that the medical school would before long form an integral part of the then flourishing "Bristol College," and share in its general literary and scientific training. Soon all the rival schools disappeared, and in 1834 the College of Surgeons was forced to capitulate, offering the same recognition as the Apothecaries had done. Thus the Bristol Medical School was launched on a course which led by various stages to incorporation in the University College (founded in 1876). Ultimately, when the University of Bristol received its Charter in 1909, the old medical school became the Faculty of Medicine in the University. It is this unbroken existence during one hundred years that has just been celebrated. The dean, Professor E. Fawcett, M.D., F.R.S., has occupied the chair of anatomy during forty years of that century, and has been dean of the Medical Faculty since 1906—a record of valued service and unremitting energy that it will be hard to equal.

COMMEMORATIVE FUNCTIONS

The programme of the celebrations was as follows. Friday, June 30th: 3.30 p.m., Receptions at the Royal Infirmary and General Hospital by the respective presidents, Lieut.-Colonel P. G. Robinson, D.S.O., and Miss Hilda Wills; 7.30 p.m., dinner at the University Union under the chairmanship of Professor Fawcett; 9.30 p.m., reception at the University by the Vice-Chancellor, Dr. T. Loveday. Saturday, July 1st: 12 noon, Congregation for the conferment of ordinary and honorary degrees; 1.30 p.m., luncheon at the University Union under the chairmanship of the Vice-Chancellor; 3.30 p.m., garden party given by the Sheriff of Bristol, Dr. W. Kenneth Wills, at the Royal Fort in the University.

The celebrations attracted a large attendance of past and present students; the Lord Mayor and the Sheriff of Bristol, delegates from numerous universities and medical corporations, and many other distinguished guests, honoured the occasion by their presence. Honorary degrees were conferred as follows. *LL.D.*: The Right Hon. Lord Dawson of Penn, President of the Royal College of Physicians of London; Sir Holburt J. Waring, President of the Royal College of Surgeons of England; Sir Norman Walker, M.D., President of the General Medical Council; Sir Frank Colyer, F.R.C.S. *D.Sc.*: Emeritus Professor E. W. Hey Groves, F.R.C.S. *M.D.*: Miles H. Phillips, F.R.C.S., professor of midwifery in the University of Sheffield. Three other honorary degrees will be conferred at a later date, upon Professor G. Elliot Smith, Professor A. V. Hill, and Professor R. Muir, who were unable to be present.

Dr. Parker's centenary history gives an account of the rise and fall of the various earlier schools, and a history, with many illustrations, of the Bristol Medical School from 1833 to 1933. With amazing industry he has included a complete list of students since 1833, with a few lists prior to that date. This work constitutes a notable contribution to the general history of medical education.

The *Bristol Medico-Chirurgical Journal* is fifty years old this year, and according to present plans a special jubilee number will be issued in September, giving a full account of last week's centenary festivities and a survey of Bristol's contributions to medical science in general.

[1] *Schola Medicinae Bristol: Its History, Lectures, and Alumni, 1833–1933.* Bristol: John Wright and Sons, Ltd. 1933.

HEALTH OF SCOTLAND

DEPARTMENT'S ANNUAL REPORT

(*Concluded from page 21*)

An encouraging feature of the year's work has been the increased output of houses under State-aided schemes, the number of houses built having risen from 11,056 in 1930, and 10,654 in 1931, to 15,818 in 1932, with a prospect of continued progress in the present year, in view of the fact that the number under construction at the end of 1932 was 19,732. It is pointed out that if an annual output of not fewer than 16,000 houses could be maintained, the shortage in Scotland would be wiped out in a few years. Good progress has been made with the clearance of slums under the 50 per cent. grant provided by the Act of 1923, and 15,349 houses have been constructed under this scheme. There have been certain changes in connexion with the population which have had an important effect upon the housing question. The last census showed that the population of Scotland decreased by 40,000 between 1921 and 1931, but that while the landward population had declined by 90,000, the burghal population had increased by 50,000. Accordingly, to meet the latter increase, some 11,000 new houses may have to be provided in the next ten years in the neighbourhood of the larger burghs. Some 6,100 new houses will be required annually in Scotland. The subsidies paid by the Exchequer during the year 1932 in respect of houses erected by local authorities, private enterprise, etc., amounted to £1,699,404. An important feature of housing has been introduced by the Town and Country Planning (Scotland) Act, 1932, which gives comprehensive powers to local authorities to regard planning schemes as one of their major functions, and empowers the Department to transfer to small burghs powers and duties generally held by county councils. Several schemes have already come into operation, including a large scheme covering an area of some ninety-six square miles in the counties of Aberdeen and Kincardine. Other schemes have been submitted by the burghs of Edinburgh, Glasgow, and Dunfermline, as well as by the Clyde Valley Regional Planning Committee and the Fife Regional Planning Committee.

Sanitation

During the year the Department has approved the details for thirty-one water and drainage schemes intended to provide relief for unemployment, at an estimated cost

of £280,888. Of 114 villages visited, thirty-three water supplies were found to be in need of improvement. The returns for the year have revealed a considerable disparity in the costs for cleansing, estimated per head of the population, as between one local authority and another, and the cost of all services carried out by different cleansing departments has ranged from 11¾d. to 14s. 7d. per head of the population, incineration having proved to be the most costly form of refuse disposal.

Food Supply

A survey of the annual reports of veterinary inspectors has shown that routine inspection of dairy cattle continues to achieve valuable results. The Department holds that true economy is effected by supervision of milk supply at the source with sufficient frequency, and sixteen county councils have now arranged to carry out veterinary inspection three times a year in landward areas, and four times in burghs. As an example of the importance of this matter the experience of Lanarkshire is quoted. This county had 34,000 dairy cows in 1930 and 38,000 in 1931. In the former year, when there was only one inspection, 111 cases of tuberculosis were discovered, while in 1931, when the number of inspections was increased, the cases of tuberculosis discovered rose to 245. It is stated that herds which are recruited entirely by the purchase of cows in the open market are mainly responsible for the presence of tubercle bacilli in milk, and that these herds should be given special attention by more frquent veterinary inspection. The problem of the eradication of bovine tuberculosis has continued to occupy much public and official attention. While the Department believes that only a small proportion of the dairy cattle in Scotland is at any one time capable of infecting the milk supply with tuberculosis, the problem of dissemination of infection through large quantities of milk by mixing one infected cow's milk with hundreds of gallons of pure milk, is a difficulty inherent in the modern system of distribution in cities. An investigation into the prevalence of tubercle bacilli in milk has been carried out, and the general rate of infection of milk retailed in Edinburgh, Glasgow, Dundee, and Aberdeen has been found to be a little over 5 per cent. ; the examination of a large number of samples of certified and Grade A (T.T.) milks has shown these milks to be safe. The number of herds licensed for the supply of certified milk has risen from forty-four in 1927 to eighty-seven in 1931, while that for the supply of Grade A (T.T.) milk has risen from fifty to ninety-two in the same period. There are at least eighty-five other tubercle-free dairy herds in the country, although the owners hesitate to bring them under the grading system owing to the limited demand for tubercle-free milk. It is suggested that a substantially increased demand for this milk would do more than any other single measure to eradicate tuberculosis from dairy herds. Only two education authorities—in Edinburgh and Aberdeen—have made use of the powers of the Education (Scotland) Act, 1930, to incur expenditure in supplying milk to children attending schools within their areas. With regard to meat supply it is pointed out that, owing to the low prices obtainable for live stock, many farmers have undertaken the killing of their animals and the retail of meat, and that the entry of farmers into the meat trade has given rise to difficulties in connexion with abattoirs. Amendment regulations have recently been published in draft, requiring that, in future, imports of beef and mutton shall be accompanied by a veterinary surgeon's certificate of freedom from disease. It is hoped that the necessary arrangements with the Governments of exporting countries will be completed in time to permit of the new requirements coming into force during 1933. Samples taken during the year under the Food and Drugs (Adulteration) Act, 1928, totalled 16,402, of which 7,680 were formal and 8,722 test samples. During the year there have been several small outbreaks of food infection due to pathogenic organisms of the enteric group, and one of an outbreak of milk-borne scarlet fever. Attention is drawn to the fact that some cases of illness may be due to strains of staphylococci, as well as to organisms of the enteric group.

SERUM TREATMENT OF POLIOMYELITIS

SUPPLIES FOR THE LONDON AREA

The Medical Research Council announces that, after discussion with the Ministry of Health, the Public Health Department of the London County Council, and the Lister Institute, it has been decided to issue a supply of serum obtained from patients convalescent from acute poliomyelitis, with a view to its trial in the treatment of the pre-paralytic stage of the disease.

Encouraging reports on the results obtained by this treatment have been received from Australia and Canada, but adequate data are still needed to confirm its value, particularly in view of doubts which recent experience in America has cast on the reliability of the basic data.

With the co-operation of several hospitals a limited supply of " convalescent " serum has already been obtained and prepared for issue at the Lister Institute, Elstree, Herts. The main stock of this serum has been deposited at the Western Fever Hospital, Seagrave Road, London, S.W.6 (telephone, Fulham 2105), where suspected early cases will be admitted for observation and treatment in the pre-paralytic stage, and whence supplies of serum may be obtained by other hospitals and practitioners in the London area for use in appropriate cases. When the quantity of available serum is larger it is hoped also to be able to send supplies to different university centres for issue on demand in the provinces.

The serum will be supplied gratuitously on the understanding that the case-record forms enclosed in the cartons shall be completed and sent for collation and analysis to the Medical Research Council, 38, Old Queen Street, S.W.1. Full particulars as to mode of administration and dosage are contained in the cartons. It is essential that the administration of the serum should only be done by a medical practitioner or pathologist who is experienced in the technique of lumbar puncture and intrathecal injection. The serum is issued in outfits each containing four 25 c.cm. ampoules, or sufficient serum to complete the treatment of a single case.

Owing to the limited stock of serum at present available it is particularly requested that the treatment shall be used only in the *pre-paralytic stage of the illness*, or exceptionally in a pyrexial phase when the symptoms indicate a rapidly progressive invasion of the spinal cord as shown by extension of the paresis or paralysis. The serum should on no account be used in the post-febrile stage when the infection has become quiescent and paralysis is established: the evidence does not support its employment in this stage.

The attention of physicians using this serum is called especially to the *Memorandum on Acute Poliomyelitis*, issued in 1932 by the Ministry of Health (London, H.M. Stationery Office, price 2d. net).

With a view to increasing the stock of " convalescent " serum for use during the approaching season, practitioners and public health officers who know of convalescents, or groups of convalescents, willing to be bled are earnestly requested to communicate with the Lister Institute, Elstree, Herts. Arrangements could then be made to supply apparatus for the collection of serum, or, if circumstances permitted, to send a worker to perform the actual bleeding.

The tenth annual report of the *Journal of the American Medical Association* (May 20th) on the diphtheria mortality in the ninety-three cities in the United States with a population of more than 100,000, shows that the diphtheria death rate per 100,000 of population in 1932 ranged from 8.16 in the case of the West South Central States to 2.53 in the Middle Atlantic States. Five cities did not register a single death from diphtheria in 1932. New York, for the third year in succession, reported a very low rate (2.9 per 100,000), Philadelphia had the best record (0.8) for any American city with a population of more than a million. The city of Camden had the highest rate (8.4), as it had in 1931.

Scotland

Graduation Ceremonies at Scottish Universities

A graduation ceremony was held at Edinburgh University on June 30th, Principal Sir Thomas Holland presiding, when the honorary degree of LL.D. was conferred, among others, upon Sir Henry Hallett Dale, M.D., F.R.S., Director of the National Institute for Medical Research, Sir Alexander Cruickshank Houston, M.B., F.R.S., Director of Water Examinations, Metropolitan Water Board, and Sir Hugh Arthur Rose, Chairman of the General Board of Control for Scotland. Among the graduates in arts were two blind students, one of whom graduated with first-class honours in English. On the same day a similar ceremony was held at Glasgow University, Principal Sir Robert S. Rait presiding, when degrees were conferred upon 486 students. Among the recipients recently of the honorary degree of LL.D. at Glasgow was Emeritus Professor William Blair-Bell of Liverpool, the first president of the British College of Obstetricians and Gynaecologists. A graduation ceremony was also held on June 30th at St. Andrews University, Principal Sir James Irvine presiding, when over 150 students were capped, including thirty-six who received the degrees of M.B., Ch.B., one who received the degree of Ch.M., and four the degree of M.D.

Royal College of Physicians, Edinburgh

The Morrison Lectures of the Royal College of Physicians of Edinburgh were delivered by Dr. Robert A. Fleming on June 19th, 21st, and 23rd. Dr. Robert Thin, President of the College, presided, and the lecturer took as his subject "The Mental Element in Crime and Criminals." In the first lecture he devoted considerable attention to the question of whether a criminal type of mind existed. With the help of a number of lantern slides illustrating prisoners who had served long or frequent sentences, he showed that there was a tendency to develop what might be called "the prison look," but he concluded that, generally speaking, no type of mind or physique was to be especially associated with crime. In discussing the causes of crime Dr. Fleming allocated a limited place to the subnormal delinquent and to criminal lunatics. In the second lecture he considered the arrangements which existed for dealing with social delinquency. Prisons of the past were contrasted with prisons and institutions of to-day, and the modifications which had been found desirable in old regulations were described. Stress was laid upon the importance of the part now played by visiting committees, and the changes that had been made in regard to prison officials. In the third lecture Dr. Fleming described the penal institutions of the United States and the great cost of crime in that country. He contrasted the successful reformative methods employed in Great Britain, and said that the development of Borstal training in Scotland and England held out great possibilities for the future prevention of crime. Reformative efforts for old offenders, and the possible value of preventive detention were discussed, and emphasis was laid upon the value of the psychological examination of delinquents, which is at present undergoing development.

Hospital for Crippled Children

The formal opening of the Hospital for Crippled Children for Edinburgh and the South-Eastern area of Scotland, situated at Fairmilehead, took place on June 20th, although the hospital has been partially occupied for the past year. The Right Hon. the Earl of Home presided, and the ceremony was performed by Mr. Noel Skelton, Under-Secretary of State for Scotland. The annual report, which was submitted by Dr. T. Ratcliffe Barnett, interim chairman of the committee of management, showed that the hospital had made a successful beginning. An original charge of £2 15s. per child per week had been estimated on comparison with the charge made at similar institutions in England, but in view of numerous representations it had been decided meantime to reduce the charge to £2 5s. per week in the case of patients supported by local authorities, and to appeal for public subscriptions to meet the deficit. The total expenditure incurred on buildings and equipment for seventy-five patients had amounted to £96,665. This sum had been met by subscription, and the hospital had been opened free of debt. There would not be a capital fund, however, upon which to work, and the running expenses would have to be defrayed from payments received for patients and from donations and subscriptions. The committee and Mr. W. A. Cochrane, surgeon to the hospital, had realized the need for developing a clinic service, but the organization could not be complete until there was a system whereby crippled children could be brought to the notice of the staff, and under which provision would be made for out-patient treatment and after-care. This could only be carried out by establishing local clinics where private practitioners, medical officers of health, and the staff of the hospital could co-operate. In some districts nursing associations already existed of which the hospital could take advantage. In others, medical officers of health were already in touch with parents and children, but in some the provision for ascertaining cripple cases was not yet adequate, and it was hoped that a scheme would shortly be formulated whereby an effective linking-up system of clinics might be formed. A plan of co-operation between the Edinburgh town council and the hospital was being prepared, and the Public Health Committee had agreed to the principle of co-operation subject to suitable financial arrangements being made. The hospital was closely affiliated with the University of Edinburgh, and was being used for clinical lectures to students, while classes were also being arranged for the teaching of probationer nurses. Dame Georgiana Buller, a member of the Central Council for the Care of Cripples, said that the whole essence of the work was curative, and it was an established fact that the great proportion of crippling diseases was curable and a large proportion preventable. A hospital for the treatment of crippled children had to be the centre and focus for a great deal of activity through orthopaedic clinics, because unless adequate machinery existed for finding cases early and following them up afterwards, much of the work done in the hospital was wasted. The cost of treating a case in hospital was about £120 a year, while the cost of clinic treatment was only about 30s. Work among cripples was essentially team work, and there had to be co-operation by local medical practitioners, voluntary agencies, public authorities, health visitors, and district nurses. Drawing attention to the economic side of the work, Dame Georgiana quoted the case of a man of 45 who had been in a workhouse since he was 13 as a cripple suffering from rickets. He must have cost the rates at least £1,200, but if his case had been taken in hand at the beginning he would have been an active citizen and an asset to the nation. It was obviously, therefore, a business proposition for public authorities to obtain the early cure of such cases, and she had no doubt that the public authorities in the Edinburgh area would come to that conclusion when they saw how they might save the ratepayers' money. In declaring the hospital open Mr. Noel Skelton said there was no department of science in which Scotland took a greater pride than in her record regarding surgery and medicine, and he thought it was of the first importance that the medical school of Edinburgh should have at its doors this example of an up-to-date orthopaedic hospital.

Erskine Hospital for Disabled Men

During a visit of inspection on June 23rd to the Princess Louise Hospital for Limbless Sailors and Soldiers, situated at Erskine, near Glasgow, Major Tryon, Minister of Pensions, said that over 800,000 men were secure for the remainder of their lives in the receipt of war pensions, which had been fixed years ago, when the cost of living was higher, but which would suffer no reduction in the face of financial changes. Since 1914 war pensions had cost the country £1,100,000,000, and the current expenditure on pensions to ex-service men, widows, and dependants was still nearly £1,000,000 a week. There were at present about 4,000 patients in hospital on account of war disabilities, and over 20,000 were treated in the course of a year. The claims of the Ministry, however, were showing a consistent fall in expenditure from natural causes. Of late years no branch of the Ministry's work had been more important than that concerned with the education and care of children who had lost their fathers in the war.

Psychiatric Research

A new research institute, to be known as the West of Scotland Neuro-Psychiatric Research Institute, was opened on June 28th by Sir H. Arthur Rose, Chairman of the General Board of Control for Scotland. The institute, situated in the grounds of Gartnavel Royal Asylum, Glasgow, is a single-story building providing twelve rooms, with departments for biochemistry, bacteriology, serology, and histology, and also various administrative rooms and an animal house. It is intended to serve twelve mental hospitals in Glasgow, Lanarkshire, and Renfrewshire, which together contain approximately 5,500 patients. Sir Arthur Rose said that an institute of this kind was vital for the successful administration of the mental hospitals associated with it. He was gratified that they had secured for the post of director Dr. W. M. Ford-Robertson, whose father had been distinguished in the same line of research. The institute would have to deal with a great mass of routine reporting work sent in from the different asylums, but if it was to fulfil its highest function it would also have to carry on research.

Ireland

Health Services in the Free State

Mr. S. T. O'Kelly, Minister for Local Government and Public Health, laid the foundation stone of the new General County Westmeath Hospital on the site about a mile from Mullingar. The estimated cost of the hospital is £51,000, of which £44,000 is to come from the proceeds of the sweepstakes and £7,000 from the county rates. Mr. O'Kelly said it was the first occasion on which he personally had been associated with some of the useful work which the Government Department was doing in the erection of hospitals. He was the custodian of public funds in this matter, but the fact that such large sums could be given was very largely due to the success of the sweepstakes. He urged, however, as a work of still greater value than the erection and equipment of hospitals, the widespread support of the prevention of disease as carried out through public health administration. Excellent work had been done in Westmeath under Dr. O'Neill, medical officer of health. Mr. O'Kelly also paid a tribute to the admirable work of Dr. Keelan, and expressed the hope that those counties not yet adopting the public health system would soon be in line with Westmeath and other counties where such valuable work for the health of the people was being done. Referring to the Government's legislation for better and increased housing, the Minister said that this was yet another way of fighting disease. Westmeath was doing well in regard to housing.

Royal Medical Benevolent Fund Society

The annual meeting of the Royal Medical Benevolent Fund Society of Ireland was held recently in the Royal College of Physicians, when Dr. T. G. Moorhead presided. The Central Committee, in its annual report, regretted that the general financial depression had been reflected in the receipts of the society. Subscriptions received by the Central Treasurer had amounted to £208, as against £226 at the last annual meeting. This decrease was due in part to the absence of life membership subscriptions, and in part to the method of recording some receipts. It was gratifying that the actual number of subscribers had increased. Subscriptions received by the Branch treasurers also showed a decrease, the relative figures being £487 for the year under review and £558 for the previous year. The loss, however, was more apparent than real, as cheques to the value of £60 had been received as contributions from the branches within a few days of the close of the financial year ; they would appear in next year's accounts. The gravest loss to the society's income had been a decrease of £267 in the yield from investments. The total receipts from this source had been £1,385, whereas in 1931–2 they had been £1,652. These figures represented the total income of the society from investments, and included the figures of the Osborne Fund. Ninety-four grants had been awarded, one less than last year. The recipients included sixty-nine widows, seventeen orphans, and eight doctors. The grants to three of these medical men had been paid from the Osborne Fund. The amount distributed in grants had been £2,267, as compared with £2,426 in the previous year. Despite this drastic reduction in the awards the amount carried forward to the financial year upon which they were then entering was £238 less than the amount carried forward last year. Appreciation was expressed at the assistance received from the St. Vincent de Paul Society, the Irish Medical Association, the Dublin Clinical Club, the Dublin Biological Club, the British Medical Association, and the Royal Medical Benevolent Fund in London. Mr. F. C. Crawley, President of the Royal College of Surgeons, in proposing the adoption of the report, said he thought it was an extraordinary thing that members were not subscribing to the society as they ought ; each member might try to get at least one new one during the year. Dr. Mills (Ballinasloe), who seconded the motion, also made reference to the apathy displayed by their professional brethren in the country towards the society.

National Health Insurance in the Free State

Giving evidence recently before a select committee of the Senate, Sir Joseph Glynn, late chairman of the National Health Commission, said that when an insured person was sick he went to a doctor and obtained a certificate stating that he was suffering from a particular complaint, but the doctor was under no obligation to do anything towards curing him. If there were medical benefits the doctor would cure him as quickly as possible. There was abuse of certification everywhere. There ought, he said, to be a system whereby doctors were paid for curing those to whom they had given certificates. Ordinary working people had to pay out of their own pockets if they wanted medical treatment. They would not go to a doctor when they were sick because it was expensive. The whole question of unemployment went with sickness. As unemployment increased, so sickness increased ; it was the same in all countries. Unemployment tended to make men ill. Dr. R. J. Rowlette, medical member of the Committee of Inquiry into Health Insurance and Medical Services, said that national health

insurance should be something more than mere payment when a person was sick. It should attempt to improve the health of the country as a whole, and particularly of the class which came under the insurance. It should be co-ordinated with the public health system of the country. The present Bill would create an extremely powerful body whose duty it would be to carry out only one part of the health work of the country without contact at all with the other health activities. The societies had never concerned themselves very much with the health of their members ; they had contented themselves with the provision of benefit. The Government would be able to exercise greater supervision at lower cost over one society than over sixty-five small societies. There was a danger, however, that one big society might interfere in political matters and try a political "pull." It would be powerful and effective, possibly in a dangerous way. With regard to certification, he did not question that evidence of laxity and remissness in the issue of certificates could be obtained. It was not, however, representative of the present system as a whole. Mr. S. T. O'Kelly, Minister for Local Government and Public Health, said that they were attempting to deal with a crisis that was threatening in national health insurance. When he came into office he was advised by the officials of the Department, who had had long experience of insurance, that a Bill of this nature was urgent. The danger was that if they did not tackle the problem in this way there might be reduced benefits. They thought it would be equitable to bring all the insured persons into one society, sharing credits and losses all over. Senator Dowdall said there was a consensus of opinion that unemployment caused the greater drain on benefits. It had been suggested that this was due to lax certification. He himself thought that a medical officer was entitled to give a certificate on borderline cases. The Minister replied that that was a matter for the conscience of the doctor, and he believed that the mass of medical men were humanitarian. Personally, his inclination would be to act generously, but as Minister he would be bound by the law.

England and Wales

Mental Welfare

The report on the conference on mental welfare, which was held last December in British Medical Association House, has now been issued in booklet form by the Central Association for Mental Welfare (24, Buckingham Palace Road, S.W.1), price 3s. 6d. It contains the addresses delivered on that occasion, together with a verbatim report of the discussion following each paper. The main topics dealt with were: the family care of mental patients ; the scope and possibilities of home training ; the social control of feeble-minded children leaving the elementary schools ; inheritance, with special reference to mental inheritance ; the value of family histories in the study of inheritance ; and school retardation as a factor in certain conduct problems of childhood and adolescence. The volume has a definite value in that it represents the focusing of very different points of view on certain problems of mental welfare, both as regards their aetiology and their treatment. One conclusion which emerges clearly is that in this department of medical practice, as in others, early accurate diagnosis, combined with the essential treatment of the causes of the morbidity, rather than of the symptomatology, opens the way to a substantial programme of prophylaxis as well as to the relief of suffering. Sir Henry Brackenbury emphasized the importance of recognizing in this connexion the biological facts concerned, which he insisted were far too often overlooked. Even where cure was apparently unlikely there was much that could be done to alleviate the condition, and the requirements of financial economy should not be allowed to shelve the problem of mental deficiency as one of relatively little significance. The whole report is an effective championship of this point of view.

London's Hills of Refuse

Speaking on June 30th at a luncheon of the Advisory Committee on London Refuse, the Minister of Health said that, without being an alarmist, he must strike a warning note about the ranges of hills of refuse which were being accumulated on the outskirts of London at the rate of about a million tons a year. Unless the work was properly done, these hills of refuse would become a sanitary danger. In the past the work had not been properly done in all cases ; he could not say that it was being properly done in all cases even now. There was still room for improvement, and improvement there must be for the sake of the public health. There was also room for improvement in the methods of collection of refuse. The standards of some authorities were not in this matter equal to the best. These were matters of first importance for the health of London. The primary responsibility was with the twenty-eight metropolitan boroughs and the City Corporation, and they had to co-ordinate their work with the authorities of the districts round London where the refuse was tipped. Most certainly some co-ordinating authority was necessary to act as a meeting place for consultation and a clearing-house for information. At his suggestion the present committee had been formed, representing the twenty-eight metropolitan boroughs and the Corporation of London. The hope and intention was that by means of this committee the necessary improvements in method could be achieved by voluntary co-operation. It was far better that it should be done voluntarily than that they should be obliged to have resort to compulsory powers, with the attendant need for fresh legislation. The committee had made a beginning with its important task, and he wished it all success.

L.C.C. Consultants and Specialists

In March last the London County Council approved revised arrangements for the provision of a consultant and specialist service for hospitals and institutions under its management. Certain additional and contingent matters were brought before the Council at its meeting on June 27th. As from July 1st, 1933, and subject to review at the end of a year, the tuberculosis officers of the metropolitan boroughs are to be deemed honorary consultants for tuberculosis in the general hospitals under the Council's management. The normal number of sessions to be worked by orthopaedists at grouped general hospitals and institutions is to be reduced by one (that is, from 11 to 10). The plastic surgeon and the assistant plastic surgeon at Hammersmith Hospital are to be placed on the scale of salary for consultants, which will mean a slight increase in their remuneration. The anaesthetists who are called upon to work at the plastic surgery unit at Hammersmith are to be paid at the rate of two guineas for a session of approximately two and a half hours' duration. A consultant for venereal diseases is to be appointed at St. Stephen's and St. Charles's Hospitals, attending three sessions a week at the former and one session a week at the latter. The position of orthopaedic surgeon at Queen Mary's Hospital for Children, Carshalton, will entail two sessions a fortnight—the surgeon to be available as required for work in the appropriate group of general hospitals—and the salary will be 200 guineas a year, with meals on duty. The position of consulting thoracic surgeon at King George V Sanatorium, with which are grouped Pinewood Sanatorium and High Wood

Hospital for Children, requires attendance at seventy-eight sessions a year, and the fee is six guineas a session, with first-class railway fare. The position of ear, nose, and throat surgeon at these same institutions entails 120 sessions a year, with the same sessional fee. The position of consulting thoracic surgeon and of ear, nose, and throat surgeon at certain in-London hospitals is remunerated at three guineas a session, or in some cases £150 a year for one session a week. At St. Luke's Hospital, Lowestoft, which is also an L.C.C. institution, the position of orthopaedic surgeon will entail one visit a month and other visits as required, the salary to be £105 a year and travelling expenses, while the consulting surgeon at the same institution, who will visit as required, is to receive two guineas for a consultation, or three guineas for an operation, including consultation. It is also proposed to the Council that during the absence of a specialist or consultant owing to sickness or other cause he should provide at his own expense an approved deputy, or, alternatively, that the Council should provide a deputy, in which case the pay of the regular consultant would cease during the period of absence. Consultants and specialists who have been appointed as from July 1st have been informed of this arrangement.

Physical Exercises in Child Education

A very convincing demonstration of what physical education can accomplish in the muscular and mental development of boys and girls and as a preparation for athletics was afforded recently at the Savoy Theatre in London by Miss Margaret Morris, whose name has been associated for many years with dances and other physical activities which combine the hygienic and artistic values of movement. The exhibition was given under the patronage of many distinguished persons, including Lord and Lady Dawson of Penn and a number of leading surgeons and orthopaedists. Children from fourteen schools participated, including girls' high schools, preparatory schools for boys, and certain special L.C.C. schools, one of them for tuberculous children. Girls from the Heritage Craft School for Cripples, at Chailey, in Sussex, also contributed some exercises which were adapted to provide as far as possible normal movements for the physically defective. But the greater part of the demonstration was undertaken with normal children, for whom the exercises were a part of their ordinary education. Miss Margaret Morris, in describing her methods, explained that the exercises were carefully graded and chosen to suit each individual, so that any faults of posture, to which ill-health was often due, or any particular weakness might be overcome. At the same time the exercises were interesting to perform because they were all compositions in movment, developing a natural grace through balance and muscular control, and seeking to maintain or establish health through artistic and rhythmical means. A prominent educationist, Mr. Roger Raven, vice-principal of Goldsmith College, University of London, said a few words on the place of physical training in education, and referred especially to the power of children to create movement for themselves. He praised Miss Morris's methods because, although some general instruction was given, the music itself told the child what to do, much of the graceful posture and movement being spontaneous—the reaction of the child to the inspiration of the music. He emphasized also the value of the group in all these exercises, saying that no child properly grew up alone, and that the group or team was as essential to aesthetic grace as to achievement in sport. Mr. R. C. Elmslie also spoke briefly on the correction of minor defects by normal exercises and the value of an approximately normal exercise for children suffering from physical maladjustment. He wanted to make it plain to the public that physical education was not a stunt, and, further, that it was not a question merely of developing muscle, but that the training reacted on the vital organs and, indeed, on all the faculties, mental and physical. The aim of the teacher, like the aim of Ling himself, the pioneer of Swedish medical gymnastics, was to secure movements which were at once simple, interesting, and intelligent. The Margaret Morris movements, he said, were scientifically thought out and easily taught, and in a quiet way much clumsiness and lack of symmetry could be overcome.

Progress at the London Hospital

In the course of his annual report at the prize-giving ceremony last week, Professor William Wright, dean of the London Hospital Medical College, mentioned the formation within the hospital of two additional special departments, which will deal respectively with diseases of the heart and with brain surgery. Progress in these two branches of medicine had been so great, technical methods of examination and treatment had become so elaborate, that it was judged necessary to create these departments if one of the primary purposes of a large medical school was to be fulfilled satisfactorily—the extension of knowledge. Fortunately the London Hospital was so large that, despite the formation of these departments, there would remain ample clinical facilities for that other great purpose—the education of students in routine methods of diagnosis and treatment. These changes would result in certain additions being made to the honorary staff. In recent months they had been able to make various structural alterations in the college, providing in particular a new and well-equipped histological laboratory—an improvement rendered possible by a legacy under the will of the late Dr. Ewan Frazer. During the year the Students' Hostel Appeal Committee, mainly through the energy and enthusiasm of Mr. Lett, succeeded in obtaining a promise of an admirable site from the house committee, and in raising £15,000 among members of the house committee and of the hospital and college staffs. The services of a distinguished architect had been engaged, and the offer of a loan of £10,000 on favourable terms had been received ; but the problem of raising at least a further £5,000 remained.

Extension of Maudsley Hospital

A scheme of extension for Maudsley Hospital has been approved by the London County Council, providing for a new and larger out-patient department and special treatment block, a children's out-patient department, additional accommodation for ninety-six patients, a small isolation wing, a nurses' home to accommodate sixty nurses, and an enlargement of the central pathological laboratory. The Maudsley Hospital was opened ten years ago for the reception of early cases of mental disorder, and is now reserved entirely for voluntary patients received under the provisions of the Mental Treatment Act, 1930. It has accommodation for 207 in-patients, and a ward in King's College Hospital, which for the time being is rented as an annexe to Maudsley, accommodates thirty-five more. Increasing demand for treatment at the hospital and difficulty in meeting the needs of a steadily growing out-patient department have pointed to the necessity for enlargement, and three years ago a capital estimate of £22,000 was approved in respect of the acquisition of land for this purpose. The total estimated cost of the scheme for extension, including equipment, is £121,500. It is proposed to carry out the work in sections, the first section to consist of the new out-patient department and special treatment block.

CORRESPONDENCE

The B.M.A. Nutrition Committee

SIR,—I hope a strictly practical report may be aimed at. It is idle, as it seems to me, to imagine that an exhaustive report is possible in time for the necessary action to be taken. Malnutrition is widespread (in spite of statistics to the contrary) among both children and adults. An "academic" committee may lack the necessary criterion of "normality." An inquiry among selected general practitioners and welfare nurses and others actually in daily touch with the problem might produce reliable and useful information. For my part, I consider a rapid voluntary "social survey" undertaken in "typical areas" would gain in depth and precision what it might lack in academic perfection and in comprehensiveness. Naturally its results should be "criticized" by an "expert" team of experienced scientists.—I am, etc.,

Redditch, July 3rd. HOWARD E. COLLIER.

Medical Practice and the Curriculum

SIR,—I am much interested in the suggestions given by Sir Ernest Graham-Little (June 24th, p. 1124) for the reform of the medical curriculum. The continuous increase in the range of matter with which acquaintanceship is required is a process that must of urgent necessity be brought to an end in the near future. The problem is admittedly one of very great difficulty, but there seem to be some reasons for believing that insufficient search is being made in other directions than that merely of a revision of the curriculum, however independently desirable such revision may be; and that relatively too much attention is being paid to the preparation for practice and too little attention to the conditions of practice itself. The science and art of Medicine, using the word in its widest sense, is expanding at least as rapidly now as at any period in its history, and there is no reason to anticipate any early check to this accumulation of new knowledge and new disciplines. This progress, moreover, can neither be ignored nor, under existing systems, can it be adequately assimilated.

It may well be that the time has come to recognize that *general* practice has had its day, and that specialism for all, as wide as possible, but still specialism, is the only satisfactory solution. General practitioners must become either physicians or surgeons, and confine their work either to medicine (in its restricted sense) or to surgery (midwifery for this purpose falling, presumably, within the province of the surgeon), for in no other way will it be possible for even the most gifted to maintain that standard of knowledge and resource that has been achieved in the past. That there are grave objections in principle as well as serious practical difficulties to a thorough-going dichotomy such as this cannot be denied, but the apparently increasing number of partnerships of physicians and surgeons, especially in the larger towns, seems to suggest that such a scheme may be already on its way. At the present time any practitioner may, of course, restrict his practice or not in any way he may choose, but I contemplate a system under which such restriction will be virtually compulsory, and in which some knowledge of all branches of Medicine will give place to a fuller experience of fewer branches.

If such a system were universally adopted the final qualifying examinations could no doubt be modified in important particulars, for it might be possible either to allow candidates the choice of a more simple examination in medicine and its associated subjects, with a more searching test in surgery and its branches, or to allow the alternative combination to those intending to practise as physicians.

A modified form of comprehensive "specialism" such as I am suggesting, though it would doubtless stimulate the formation of partnerships, would by no means, I think, imply the elimination of the independent practitioner, though perhaps one of the greatest difficulties would be to persuade the public to co-operate in a scheme that would virtually have the effect of causing every patient to require two regular doctors; but such prejudices are probably not insuperable. Serious as the obstacles undoubtedly are to any such division of labour in medical practice, I feel that reform on some lines of this sort is the only possible solution if the highest standards of diagnosis and treatment are to remain available for all.—I am, etc.,

London, W.8, June 26th. ANTHONY W. CAMAC MELLOR.

Cortical Extract in Addison's Disease

SIR,—In the course of a leading article on "The Suprarenal Cortex" in the *Journal* of June 10th you state that treatment of Addison's disease with cortical extract "fails to remove three cardinal features of the disease—namely, hypotension, pigmentation, and hypoglycaemia." It seems to me that, so far as the hypotension and pigmentation are concerned, this statement is contrary to the bulk of the evidence. Levy Simpson[1] describes a series of six cases, all of which showed a diminution of pigmentation following treatment with cortical extract. Four of these cases also showed a definite rise in blood pressure. In their account of twenty cases treated with cortical extract, Rowntree et al.[2] state that a decrease in pigmentation was one of the effects noted, and also a rise of blood pressure in those patients who were in a state of crisis when treatment began. Unfortunately details of these changes are given in only a few of the case reports. In one of the three cases described by Benham et al.[3] a rise of blood pressure occurred following administration of cortical extract. In the case described by McCrie et al.[4] a rise in blood pressure and a decrease in pigmentation were observed. The same is true of the case described by Thompson and Russell.[5]

The evidence for the effect of cortical extract on the hypoglycaemia of Addison's disease appears to me to be too meagre as yet to permit of a conclusion either way.—I am, etc.,

Oxford, June 26th. MARY FISHER.

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Treatment of Combined Sclerosis

SIR,—Dr. William Sargant (July 1st, p. 34) is perfectly right in pointing out that my patient who developed megalocytosis and subacute combined degeneration while under treatment with iron was having a good deal less iron than he advises. I am much interested in Dr. Sargant's work on subacute combined degeneration, which seems to me a most promising research on this very obscure malady. But when there are several remedies for a disease there is a risk that the inexperienced may employ none of them to the best advantage. For this reason I stressed the value of desiccated stomach to the general practitioner in the treatment of pernicious anaemia and subacute combined degeneration, as it is a cheap and complete remedy, whereas iron is apparently of little or no value for the anaemia.—I am, etc.,

London, W.1, July 3rd. L. J. WITTS.

Hernia and Appendicectomy

SIR,—Recent correspondence in your columns on the association of inguinal hernia with the muscle-splitting incision for appendicitis induces me to put forward a theory which I have held for some time to account for the occasional appearance of inguinal hernia after the removal of an appendix by the McBurney incision.

It seems to me to be insufficiently known that patients will complain of pain, usually of a stabbing nature, referred to the area above the inguinal ligament some time—occasionally months—before the appearance of a hernia. The type of case I am thinking of is that of a patient who is putting on fat. Attempts on the part of the swollen omentum to force its way into the mouth of a pre-existing sac after some unusual effort will give rise to pain which may be mistaken for appendicular pain. The appendix is removed, and some time later an inguinal hernia makes its appearance. Many surgeons like to use the muscle-splitting incision for so-called interval appendixes, although it is in precisely these cases where there is an element of doubt that it ought not to be used.

I should like to ask those who regard an injury to the ilio-inguinal nerve as the cause, how many times they see this nerve in the McBurney operation, and why no one seems to have recorded a left inguinal hernia following the use of a similar incision on the left side for a colostomy.—I am, etc.,

Capetown, May 23rd. GEORGE SACKS, M.B., F.R.C.S.

The Word "Spontaneous"

SIR,—Is it not high time that writers on medical and scientific matters discarded that objectionable—because misleading—word "spontaneous"? It is either slackness of thought or an over-rigid adherence to routine that keeps such a word alive in any scientific connotation. A process cannot, strictly speaking, be spontaneous—that is, self-caused. It can but be the effect of a prior cause, and therefore the word is really masquerading under the guise of an assurance of an impossible state of affairs, to conceal ignorance of the *primum mobile* of the process in question. By all means concede to the lay press the right to use such expressions as "a spontaneous gift," or "a spontaneous burst of applause," despite their intrinsic incongruities, but such licence is unpardonable in science.

Biologists are constantly using the word "spontaneous" in relation to motion, action, growth, variation, generation, etc.; chemists talk of the spontaneous combustion of coal or oil; physicists of the spontaneous disintegration of radio-active matter; while medical men have their spontaneous recoveries and fractures, and the spontaneous rectification, version, evolution, and expulsion of the foetus. In to-day's *British Medical Journal* are two headlines in the *Epitome of Current Medical Literature*, "Spontaneous Subarachnoid Haemorrhage" and "Spontaneous Serum Sickness." *Hinc illae lacrimae!*—I am, etc.,

CHARLES M. BEADNELL,
Ringwood, June 24th. Surgeon Rear-Admiral.

*** Loath to steal a march on others, whose feelings about the word "spontaneous" may be stronger than our own, we must, however, point out (1) that in the original article of which an abstract appeared in the *Epitome* under the heading of "Spontaneous Subarachnoid Haemorrhage" the author states: "By using the word 'spontaneous' I wish to exclude all traumatic cases"; (2) that the second abstract, headed "Spontaneous Serum Sickness," describes two cases in which symptoms arose from the absorption of a tuberculous effusion—that is, without the administration of serum, and in the absence of any outside agency. It remains for us to quote the *Oxford Dictionary*, which defines "spontaneous" as "occurring without apparent external cause, having a self-contained cause or origin."

Arthritis and Allied Conditions

SIR,—The main object of the report of the Arthritis Committee, published in the *Journal* of June 17th, is, in the words of your leading article, "to present to the practitioner an authoritative statement on the subject of arthritis which may serve him as a guide amongst the shoals of conflicting theories and the enthusiastic assertions of the advocates of panaceas." This is a truly admirable object. It was a difficult one, and it is apparent from the report that this difficulty has been quite insurmountable. As medical practitioners in general and in specialized spheres we are seeking guidance as to the lines along which attacks against rheumatism are to be directed. Much information has been brought to us, but we are not in a position to decide what of it is of essential, or immediate, or of possible later value. The present authoritative statement suggests little hope for an organized advance, but rather indicates a prospect of disorderly retreat. There is no wide survey of the situation giving indication where to advance, to entrench, or to retreat.

In the first paragraph, on nomenclature and classification, it is stated that subacute rheumatism, specific infections such as gonococcal, and gout have been excluded from the scope of this inquiry. The section opens with rheumatoid arthritis, "primary" and "secondary." As a clinical grouping surely this is unorthodox and unwise. Some thirty years ago Sir William Hale-White drew a brilliant clinical picture which in its colour and detail is as perfect to-day, and is one which gives pleasure to those of us who are students of this subject. The clinical features of primary and secondary rheumatoid arthritis, as detailed in this report, are seemingly identical, and in the experience of some of us are present in many cases in which there is clinical, bacteriological, and radiological evidence of gout or gonococcal infection. The clinical picture that we recognize is taken away, and one that is unknown to us, and the accuracy of which we doubt, is put in its place. It is the discriminating selection of facts, as distinguished from supposed facts and fiction often associated with the diagnosis and treatment of the various stages of the rheumatic diseases, that it is the purpose of a report such as this to present. This is absent, and in its place are static pictures of worn-out diseases and lists of remedies cited with little or no indication of their place and significance in the various pictures to which they refer.

In regard to treatment, the first section following the short opening paragraph on prophylaxis is a section on vaccines (p. 1044), and the methods of treatment by vaccines and intrapelvic diathermy take an important place. In the former no indication of the type of case suitable for this treatment is given; and in the latter, successful results referred to occurred in conditions such as gonococcal infection, which are admitted as being outside the scope of this report.

No vivid pictures of at least certain recognizable forms of arthritis are drawn and their treatment detailed. Methods of treatment which in their specific sphere are invaluable are, without definite reference or warning as to their limitations, allowed to usurp the place of principles and proven facts. A biased and distorted picture has been given which, if at all understandable, is one that may well increase rather than diminish the difficulties of the practitioner. Within recent years much work has been done; new facts on diagnosis and treatment have been revealed; but as yet they have not been brought to the knowledge of the majority of medical practitioners.

When they have been assimilated and their relative values assessed, the early diagnosis and successful treatment of the rheumatic diseases will be more frequent. The present opportunity which has been offered to do this does not appear to have been taken. It is my sincere wish and belief that this report will in part achieve its excellent purpose by arousing interest and encouraging a critical attitude and a desire and demand for knowledge in those of us to whom it is addressed.—I am, etc.,

London, W.1, June 27th. FRANCIS BACH, M.D.

Cosmetics

SIR,—When I contributed an article on cosmetics to your issue of June 10th (p. 999) I little realized that it would bring not only the public Press and its readers about my head, but also the more Olympian thunder of Dr. MacKenna, who unkindly accuses me of being on the one hand provocative and on the other insinuating. He rebukes me first for having entirely failed to acknowledge the assistance his paper was to mine. My bibliography comprised twenty-eight references, Dr. MacKenna's included. If I had made individual acknowledgement of what I owed to each of these it could only have been done by sacrificing a considerable part of my paper, which was already too long and had to be cut down. This would, perhaps, have been no great loss, but one has an affection for one's offspring of the pen and a dislike of mutilating them. I see now that it would have been wiser and less "provocative" to have amputated my infant's legs and supplied it instead with a sound genealogical tree. I apologize to Dr. MacKenna and to the other twenty-seven authors for having failed to do so.

Dr. MacKenna goes on to say that "by making full use of fragmentary excerpts torn from their context she attributes to me a bias which is, I think, undeserved." In criticizing an article, unless one quotes it in its entirety—which is manifestly impossible—one is always open to this charge of literary assault. But in order to satisfy myself that I had not inadvertently misquoted Dr. MacKenna I have carefully re-read his original article, and it appears to me that my interpretation of it was scrupulously fair, and this, I cannot but think, must be the opinion of any unprejudiced reader. Space, and the patience of your readers, forbids my taking up every point. I will therefore confine myself to two examples. Dr. MacKenna says: "I am not, as Dr. Carleton insinuates, unaware that dirt may be removed with cold cream." What I said was: "MacKenna ridicules the cleansing properties of cold cream." But is this not the natural inference of his statement: "The majority of 'beauty specialists' suggest that soap and water should not be used, but the face should be 'cleansed' [*sic*] by the application of cold cream"? The *sic* is Dr. MacKenna's, not mine. Later he says: "I object to being classified by insinuation as a person who condemns cosmetics as wholly injurious." "On the whole, injurious," would have been more correct, and for this slip I do apologize. But may I, in my turn, deprecate the use of that word "insinuation"? "Implication" or "inference"—Yes; but not "insinuation." "*Des coups d'épée, Monsieur, pas des coups d'épingle.*"

The final sentence of Dr. MacKenna's letter appears to me to sum up our grounds of difference. "The windmill," he says, "against which I have tilted is the continuous use of cosmetic preparations—the endless application of astringent lotions and fatty and waxy ointments to the detriment of the individual and the very definite benefit of numerous commercial interests." With regard to the astringent lotions I am, as I said in my paper, in substantial agreement with his view. The benefit of commercial interests is irrelevant to the point at issue, except as a red herring of doubtful flavour. There remain the ointments. And here I can only humbly suggest that Dr. MacKenna, like Don Quixote, may be mistaken in his windmill. The women of my practice or acquaintance who for years have used cosmetics appear to me, *on the whole*, to have better-looking skins than those who do not. This is, of course, a crude and superficial observation, and many other factors obviously enter into the matter. But at least these women do not appear to have suffered as a consequence. Since I can find neither the blocking of the sebaceous glands nor the atrophy to which Dr. MacKenna refers, what can I do but invoke St. Thomas and repeat, "Show me the proof"? Dr. MacKenna's skill and experience are so much superior to mine that I should hesitate to express views contrary to his if I were not comforted by the fact that they are sanctioned, as I said in my article, by such authorities as Kromayer in Germany and Sabouraud in France. So that in dermatology, as in other matters, what is heresy in England is orthodoxy abroad.—I am, etc.,

Oxford, June 27th. ALICE CARLETON.

Treatment of Chorea

SIR,—In the *Journal* of June 10th (p. 1003) Dr. Donald Bateman, in his short paper entitled "A Treatment of Sydenham's Chorea," advocates the induction of fever by the use of injections of the triple typhoid vaccine, giving a detailed description of the routine practised at the Bellevue Hospital, New York. He advances as his reason for utilizing this drastic therapeutic measure that it shortens by more than 50 per cent. the duration of the patient's stay in hospital. During the last two or three years I have given trial to this form of non-specific therapy in treating cases of chorea, but I do not find that it shortens the stay of the patient in hospital, for the wasting and weakness consequent on the induced hyperpyrexia render it incumbent to keep the patient as a convalescent for some weeks before sending it back to an environment which all too often is unhygienic and also not conducive to that requisite rest and quiet that cases of chorea need. Again, I have not noticed that this form of therapy diminishes recurrences, but, on the other hand, I am inclined to think that the recurrence, when it happens is often more violent than in the case of those treated by the usual rest and therapeutic method. My cases are too few to be dogmatic on this point.

During the last twenty years, in the treatment of chorea, I have tried, I should imagine, every drug that has been advocated, from arsenic to nirvanol, and every method of therapy—hydrotherapy, psychotherapy, etc.—and I still wait to find a drug or treatment which will shorten the duration of this mild but important disease. The most dramatic sudden cures of chorea I have ever seen occurred in two cases in which erysipelas intervened—an interesting line of thought, remembering the possibility of the streptococcus as a causal factor. In four cases which I treated some years ago by the withdrawal of blood from the patient and the injection of the serum intrathecally, the results were also dramatic—hyperpyrexia, and after two injections a cessation of choreic movements; but just as I was becoming enthusiastic they all relapsed—relapsed badly—and one patient still attends my clinic, though her original treatment took place five years ago.

My object in writing this letter is to sound a note of warning in the general adoption of a line of treatment, especially outside hospitals, in which the end-results, in my opinion, are not justified by the attendant discomfort and danger.—I am, etc.,

LEOPOLD MANDEL, M.D., M.R.C.P.
Physician, with Charge of Children's Department, London Jewish Hospital.

London, W.1, June 22nd.

"New Treatments for Old"

SIR,—I read Lord Horder's Oration on the above subject with great interest, and, it must be confessed, with some disappointment.

I was interested to note the reference to the Abrams box —" a piece of machinery (save the mark!) "—" apparatus " would have been a more appropriate word—which offends both physical and physiological principles. There are few of us who would differ from Lord Horder's remarks on that subject. It will be remembered that he presided over the committee which investigated the alleged claims of that egregious piece of humbug ; and that there was a disposition on the part of some members of the committee to think there might be something in it.

Lord Horder very rightly deplores slovenliness " on the point of terms and definitions," yet shortly afterwards remarks that " it is Nature that cures, not we." There are some who wonder whether Nature ever really does cure or whether she merely " effects repair "—a very different matter, which necessarily depends on the nature and extent of the lesion. It would not be incorrect to say that the surgeon " cures " a hernia, but that Nature effects the repair. If a " disease process " can be arrested by the application of physiological, pathological, and therapeutic knowledge, Nature may usually be depended upon to bring about repair, but not necessarily to cure.

I notice that Lord Horder refers to the appeal to a credulous public made by what he terms " direct action " remedies—" blood mixture," " asthma cure," etc. He might preferably have called them " selective action " remedies. Even preparations used by the profession do not escape the lash of his whip. After all, What *is* in a name? I for one shall always feel grateful to one of the remedies he mentions—namely, antibacsyn. Influenza may differ from furunculosis as far as outward manifestations are concerned, but is there no resemblance immunologically, if I may use such a word without offence?

Lord Horder mentions an intestinal disinfectant which will render the faeces sterile. I know the one to which he probably refers, and have used it and been thankful for it—and so have others who have worked in the Tropics. There was no need for my imagination to " toy with what might happen to a patient with sterile faeces." My patients' faeces only remained sterile as long as I wanted them to do so ; and they recovered. It is always an advantage for patients to recover. Even Lord Horder admits that an effective intestinal disinfectant is a " consummation devoutly to be wished by many." After all, it assists Nature to effect repair. Nobody with an elementary knowledge of the physiology of digestion would contemplate the maintenance of permanent sterility of the alimentary canal.

If there is a lesson in Lord Horder's Oration it is that the clinician, while not disdaining to utilize every advantage which bacteriology, biochemistry, pathology, and radiology place at his disposal for the investigation of disease, should show discretion in the adoption of new methods of treatment. But he should keep himself fully informed of all advances made in this field, and not hesitate to use new methods if they are superior or if the old ones are of no avail ; provided that the rationale is based upon scientific foundations, that after careful consideration they appeal to the intelligence, and that they appear to offer hope to the patient.

There is no need to worry about the " mass man " and the " direct actionist." If there is any good in their methods it will compel recognition. As in politics, " left wingers " are not all bad, nor are all " right wingers " good. Many methods in daily use to-day were the revolutionary measures—the " new treatments "—of our fathers. Was it not the father of the late Sir William MacCormac who was driven from his practice because he employed the open-air treatment for phthisis? The " new treatment " of yesterday has become the routine of to-day. Advances in knowledge of disease frequently make new treatments imperative. Diphtheria is no longer regarded as a local inflammation of the throat and treated with carbolic sprays, etc., nor is kala-azar now looked upon as a particularly deadly form of malaria which must *ipso facto* be treated with quinine. As Lord Horder remarks, " the pendulum of practice still swings." Of course it does, and it always will ; but when we bleed in the twentieth century we like to think that we do so with a sounder understanding of its indications and limitations. I once saw a patient with pneumonia who was moribund with a failing toxic heart and a blood pressure of 90/50. The doctor in attendance had made a " dog's dinner " of both ante-cubital spaces in an attempt to bleed him, because it said in the textbooks that bleeding would relieve an overloaded right heart. One cannot legislate for ignorance. The march of progress must continue, as it always has done ; all that is bad being forgotten because it is bad, and all that is good proving itself good. The specific of to-day may become contraindicated by to-morrow's discoveries. The seeing eye and the thinking mind are trusty safeguards against error and disaster.—I am, etc.,

H. M. STANLEY TURNER,
Wing Commander R.A.F. (ret.).

Abingdon, Berks, June 27th.

SIR,—Dr. W. N. Leak's statement (June 24th, p. 1127) that his baby " had a temperature of 104° and well-marked bronchopneumonia," that " she was at once given an ampoule of omnadin and the more usual treatment for her condition," and that " next morning her temperature was normal and remained so," needs emphatic challenging. I congratulate him on his daughter's miraculous recovery, and compliment his fatherly enthusiasm. But how can bronchopneumonia be well marked overnight? What proof is there that there was actually a pneumonia present, and not something simulating this? If we cannot prevent or abort a mere cold, how can we claim to nip pneumonia in the bud, especially when " well marked "? It is an ever-recurring experience for children to recover spontaneously from feverish chills.

One of the most urgent needs of the day is a power to curb the activities of drug manufacturers, with their new, expensive concoctions, labelled with insane names. Steps should also be taken to hand over, like unlicensed firearms, useless drugs in the *B.P.* What earthly use is lead, for example? It is a weight on therapeutics. Many dangerous drugs have some legitimate virtue and are eliminated by the body, but lead, externally and internally, is a poison, always valueless, which accumulates in the system. Leave lead to the plumbers.—I am, etc.,

J. KELVIN, M.B.

Glasgow, June 29th.

Use of Quinine in Normal Labour

SIR,—In your issue of April 1st (p. 587) Dr. W. A. Rees reports a case of retained placenta following the use of quinine to induce labour, and he asks if any readers have come across a similar experience.

In January, 1932, the wife of my Chinese house-surgeon, a primipara aged 21, was one week over time, and the measurements were small (interspinous 9 inches, intercristal 10 inches), so I suggested quinine. She was given quinine sulphate, 10 grains three times a day, for one day, after which labour commenced. The first and second stages were normal, and a nine-pound baby was delivered naturally. The placenta, however, would not come away, and, finally, after two hours, I removed it manually from the uterus—a very difficult task. At the

time we put it down to adherent placenta, the latter being of a very fibrous type, but it is conceivable that the 30 grains of quinine given may have had something to do with it.—I am, etc.,

Mackenzie Memorial Hospital, Tientsin, June 3rd. GEORGE C. DORLING.

"Total" Hysterectomy

SIR,—I was interested to read in the *Journal* of April 29th (p. 741) Dr. Ralph Worrall's paper on total hysterectomy for non-malignant conditions. I find it very difficult, however, to appreciate how he can possibly label the technique he describes "total hysterectomy." It is well known that the cervical glands and their cystic dilatations penetrate very deeply, and I feel sure that if Dr. Worrall were to excise what remains of the cervix after his "total hysterectomy," he would have no difficulty in satisfying himself that the operation he describes does not deserve the title he gives it.—I am, etc.,

Royal Hospital, Baghdad, June 11th. G. S. WOODMAN, F.R.C.S.Ed.

Paying Patients in Voluntary Hospitals

SIR,—Since you referred in the *Journal* of August 18th, 1928 (p. 317), to the report of the Pay Beds Committee of the King Edward's Fund for London, circumstances have brought all concerned very much up against the problems involved in this proposal. You then remarked that "changes in conditions in the metropolis will certainly have their reactions upon the country generally," and you went on to state that if the proposals made in that report are to be carried into effect "the ranks of the younger consultants will be steadily thinned." It is not only the interests of this group in the profession which will be affected, but also those of the visiting medical staffs and of the general medical practitioners.

At the Annual Representative Meeting of the British Medical Association to be held in Dublin this month this question will come up again for discussion, as on the agenda there appear proposals outlining the terms and conditions under which private patients should be received in voluntary hospitals; and therefore it is to be hoped that by free discussion and clear thinking it may be possible for the medical profession to put concisely before the public proposals which will be equitable to all concerned.

The proposals outlined in the Pay Beds Committee's report, that:

(*a*) accommodation provided in voluntary hospitals should be placed at the disposal of those of "moderate means" on the same terms and conditions as apply to the "sick poor"; no payment for medical treatment being allowed;
(*b*) the general practitioners should be "kept in contact with" these patients by communication, information, and advice;
(*c*) that the committee of management should lay down certain rules or limitations as to the medical practitioners who should be allowed to attend these patients;

are such as evidently appeal to the committees of management of many voluntary hospitals. Judging by the various schemes which are being launched by these committees, it would seem that they consider

(*a*) that private patients should be a source of income to the hospitals;
(*b*) that the visiting medical staff should be expected to contract to give their services for little or nothing;
(*c*) that the general medical practitioner, and the private young consultants, should be entirely detached from any association with the private patient department of these hospitals; and
(*d*) that the consultants and specialists of the visiting medical staffs, by attendance on all these private patients for whatever may be the illness, should become to all intents general medical practitioners.

The question of providing general medical practitioners with accommodation in the private patient department for those of their patients who require only "general medical practitioner" treatment does not seem to have been considered by the boards of management, or, if it has been, then it has been turned down as either impracticable or unnecessary. It is to be hoped, therefore, that the Representative Body will in definite terms announce, on behalf of the medical profession,

(1) that in all districts there should be available accommodation in voluntary hospital, nursing home, or/and otherwise, for private patients requiring "specialist treatment," and for those requiring "general medical practitioner treatment";
(2) that if a voluntary hospital enters into the business of providing accommodation for private patients then the administration of this department should be as far as possible on the lines recognized by the medical profession as those of a private nursing home;
(3) that the manner in which the public department of a voluntary hospital is conducted should not determine the manner in which the private patient department should be conducted;
(4) that there should be for the private patient: (i) free choice of doctor; (ii) admission on the recommendation of a private doctor; and (*a*) that the private medical practitioner, whether young consultant (not attached to the visiting medical staff) or the general medical practitioner, should have the entrée to the department as a right, along with the members of the visiting medical staff, and not as a matter of courtesy; (*b*) that the fees should be a matter of arrangement with the attendant doctor, gratuitous attendance neither being expected nor given.

If the medical profession does not unite on the above principles and secure their adoption then it will not be long before the general medical practitioner finds that if his patients go into the private patient department of a voluntary hospital he will lose them, or, alternatively, that he will be obliged to use a less well-equipped nursing home.

To endeavour to dissuade the medical profession from affirming now, and in clear terms, the desired position alongside the visiting medical staff for the younger consultants and the general medical practitioner, because in the opinion of some at this moment it will not be universally obtainable, will eventuate in a condition of affairs when it will have become too late. And once more medicine will have received a set-back; the "back-bone of the profession" will have been deprived still further of the experience and remuneration to which it is entitled; and the middle-class public will lose the advantage of that efficient medical attendance which is at its disposal and to which it is entitled.—I am, etc.,

Hove, July 1st. E. ROWLAND FOTHERGILL.

The G.P.'s Proper Work

SIR,—I think the note in your issue of June 24th, headed "Fee-splitting and the Law" (from a legal correspondent), one of the finest and most explicit articles I have ever read, and very much wanted by the general practitioner, who is degenerating and looking round for some means of making a living because of the incessant inroads into his practice caused by the eternal clinics and whole-time men and women who are robbing him of his ordinary practice. Take maternity practice alone. We are surrounded by district nurses, who attend the women wholesale in their confinements; half of them do nothing but sit and watch, and long after the women should have been relieved they call on the general practitioner to come and clear up the mess. I consider every primipara ought to have a doctor in attendance during her pregnancy and at the confinement. All these clinics and nurses are kept up by robbing the general practitioner of his lawful work. The two letters on "The G.P. and Midwifery," by Dr. Terence Robinson and Dr. Kathleen Vaughan, are very much to the point.—I am, etc.,

Wallington, June 26th. A. Z. C. CRESSY.

Obituary

J. A. MITCHELL, M.B., D.P.H.

Late Secretary for Public Health and Chief Health Officer, Union of South Africa

Dr. J. A. Mitchell, formerly Secretary for Public Health and Chief Health Officer of the Union of South Africa, died at his home in Rondebosch on June 12th, after a week of critical illness. Warned some years ago of his dangerously high blood pressure by cardiologists, both in Capetown and in Johannesburg, he nevertheless continued working at the very high pitch to which he was accustomed. He had enjoyed the most robust health. His high blood pressure was discovered by accident as the result of an *x*-ray examination of the foot because of some slight tendon trouble. The plate showed a calcified blood vessel. The sphygmomanometer, then applied for the first time in Dr. Mitchell's life, revealed the startlingly high pressure. In spite of some precautionary measures it remained consistently above 240 mm. for some ten years, until after his breakdown in 1930. This took place at Bangkok, where he was representing the Union Government at a meeting of the Leprosy Commission of the League of Nations Health Organization. During a very lengthy motor trip he experienced a unilateral numbness, but was unaware of its real significance until the journey's end, when the paresis was discovered on trying to leave the car. He returned immediately to South Africa instead of going to the further Leprosy Congress convened by the Leonard Wood Memorial Organization in Manila. He made a partial recovery and resumed duty for a short time, but owing to continued ill-health he found it necessary to relinquish his offiee permanently in April, 1932.

James Alexander Mitchell was born in Ireland in 1876, and was educated at Foyle College, Londonderry, and at Glasgow, Edinburgh, and Cambridge Universities. He was a civil surgeon in the Edinburgh military district for a year. He went to South Africa in 1899 as bacteriologist for leprosy research, Robben Island, for which post he was selected by Lord Lister, acting on behalf of the Cape Government. His great administrative ability, however, became evident almost immediately to Dr. Gregory, who was then in charge of the Health Service of the old Cape Colony, and within two years Dr. Mitchell was appointed assistant medical officer of health for the colony. This post he held until the time of union (1910), when he became assistant medical officer of health for the Union of South Africa. He occupied this post until 1918, when he was appointed Chief Health Officer. Two years later, when the new Department of Public Health was created—following on the terrible shock sustained by the country as the result of the influenza epidemic—he was made Secretary of that Department. This post he held until his retirement.

In addition to the dual appointment as head of the Department and Chief Health Officer, he was deputy chairman of the Union Council of Public Health, chairman of the Union Leprosy Advisory Committee, and a member of the South African Medical Council. He saw service in the great war, holding the rank of lieutenant-colonel with the South African Medical Corps. During the South-West Africa campaign he was assistant director of medical services for the Southern Force and lines of communication, and was mentioned in dispatches.

Dr. Mitchell represented the Union of South Africa on many Commissions. He was mainly instrumental in placing the present satisfactory health and medical registration legislation on the Statute Book; the medical profession is particularly indebted to him for his work in this connexion.

W. W. GREER, *M.C.*, M.D., F.R.C.S.ED.

Dr. William Wells Greer died at his residence at Bedfont, Middlesex, on July 1st. He was born in Chester in 1876, but left England with his parents at an early age to begin his general education in Queensland, where he obtained a scholarship at Townsville Grammar School, afterwards going to the grammar school in Brisbane. He returned to Edinburgh in 1899 to study medicine at the Royal Infirmary, and graduated M.B., Ch.B. in 1904, receiving the doctorate in 1906 with special commendation for his thesis. He was a member of the British Medical Association. Dr. Bramwell (afterwards Sir Byrom Bramwell) invited him to become his house-physician, which post he ultimately held for a year, but not until he had first served for six months as an assistant in general practice to a Dr. Carruthers in Congleton, Cheshire. The interruption of his hospital career at this stage was a great disappointment to him, but was rendered imperative by financial considerations. It was with characteristic determination that he took up the hard apprenticeship of an assistant in order to save the means which enabled him later to accept a second invitation from his old teacher, whose clinical example and personal influence undoubtedly moulded to a large extent Greer's own practical trend of thought. After finishing his time at the Royal Infirmary he returned to Australia to practise, and settled in Kyogle, Richmond River, N.S.W., where he built and organized his own hospital and established a well-deserved reputation as a surgeon. In 1913 he returned to Edinburgh to work for the F.R.C.S., which he obtained just before the outbreak of the war. In August, 1914, he joined the 1/3 Lowland Field Ambulance, with which he served throughout the war in Gallipoli, Palestine, France, and Belgium, being twice mentioned in dispatches and awarded the Military Cross. After the war he went to practise in Australia for five years. In 1925, while on holiday in Europe, he met with a serious accident, and sustained a fracture of the skull. This was the beginning of a long series of illnesses which led to his untimely death, though for the last five or six years he was able to carry on a successful practice at Bedfont.

A colleague writes: The combination of a rare imagination with an intensely practical attitude towards life gave to Greer an intellectual outlook which would have made him an ideal teacher of surgery had he remained in the academic world. Destiny, however, had marked him for the highways and byways of practice in a country in which distances were great and where many bricks had to be made without straw. Although precluded by the circumstances of his work from the opportunities for much reading or discussion of medical problems, he never lost the fine clinical instinct which, inherent from the beginning, had developed so strongly during his association with Bramwell. His knowledge of men was deep, his sympathy immense. The affection which he felt for his patients was blended with his intellectual gifts and his practical determination, and this gave his clinical work the character which it invariably showed, and which made his reputation among colleagues and patients one of which any man might well have been proud. Of this, however, Greer was largely unconscious, and the gentle and naïve surprise that he would exhibit at any outside praise was as beautiful as it was unaffected. Truly he was a doctor of the old school, whose life and work, like those of so many whose names are not writ large in the chronicles of men, will nevertheless remain an abiding example to the multitude of those who benefited by him, and still more to the smaller band of intimates to whom, by his strength and sweetness, he was so greatly endeared.

J. FORD ANDERSON, M.D.

Dr. J. Ford Anderson, who died on June 29th at his home in London in his ninety-fourth year, was at one time active in the affairs of the British Medical Association, which he joined as long ago as 1865. It is interesting to recall that another veteran member, Sir James Crichton-Browne, ten months his junior, was elected in 1866.

John Ford Anderson, son of the Rev. A. Anderson, LL.D., was born at Boyndie, in Scotland, on January 23rd, 1840, and was a kinsman of the late Sir Hugh Anderson, M.D., F.R.S., Master of Gonville and Caius College, Cambridge. He was educated at the Universities of Aberdeen, Edinburgh, and Paris, and obtained the L.R.C.S.Ed. in 1861, graduating M.D. and C.M.Aberd. in 1863. Many years later, at the advanced aged of 86, he became a member of the Royal College of Physicians of London. Before commencing practice in London he was for a time resident physician at the Middlesex Hospital, and from 1875 to 1893 lectured in obstetrics at the London School of Medicine for Women. In 1904, when chairman of the Hampstead Division, he was elected to the Council of the British Medical Association and to the Hospitals Committee, and served again on the Council in 1909–10, while president of the Metropolitan Counties Branch. In 1921, when the Association met in Newcastle, he was a member of the Representative Body. During two years of the war he had charge of St. Marylebone workhouse infirmary.

Dr. Ford Anderson was the author of one or two short clinical papers, and of articles on provident dispensaries and on ethical aspects of the hospital question. His presidential address to the Metropolitan Counties Branch, on home and hospital treatment of the poor and the low wage-earners, appeared in the *Supplement* to our issue of June 26th, 1909. In this he dealt more particularly with recommendations in the majority report of the Royal Commission on the Poor Laws, with special reference to London conditions. He was a member of the Royal Medico-Psychological Association, and had served on the council of the Federation of Medical and Allied Services. The conduct of a large practice in Hampstead, for much more than half a century, by no means exhausted his energy and zest for life. Among other interests in later years he was highly appreciative of the radio, and in 1932 gave a number of broadcast talks which brought him friendly letters from hundreds of listeners.

THE LATE MR. HAMILTON RUSSELL

Sir STCLAIR THOMSON writes:

The obituary notice of my fellow student, Hamilton Russell, in the *Journal* of June 24th is so sympathetic and complete that there is little one can add to it. For the sake of historical accuracy it would be well to correct a mistake which appeared in the *Times* and several other journals, saying that he "was the last of the house-surgeons to work under Lister." Now Hamilton Russell was a dresser in King's College Hospital with me when W. J. Penny of Bristol—a well-known quarter-miler and footballer—was house-surgeon. In 1881 Russell was clerk when the house-surgeon was Colonel R. Pratt Bond, R.A.M.C.; and he was himself house-surgeon in the session 1883–4, the year in which Lister received his baronetcy. Many years afterwards Hamilton Russell wrote of this as follows:

"I have a very vivid memory of an incident that occurred one afternoon when I was house-surgeon. I was walking with my illustrious chief up the great staircase of King's College Hospital to the wards, when he handed me a letter he had just received. It was a letter couched in language of incomparable grace, conveying to Mr. Lister the desire of Queen Victoria that he would accept a baronetcy in recognition of his service to the cause of suffering humanity. . . . And Lister was frankly and unaffectedly delighted; there was even something a little boyish in his pleasure, which for a moment struck me with vague surprise. Needless to say, however, the real source of his satisfaction was quite devoid of any sense of personal aggrandisement; he regarded the honour as a kind of sign manifest to all the world of the rightness of the surgical principles that he had laid down, and striven for, and taught. As he put it in an amusingly homely parlance, 'I dare say it will help things along.' What he was pleased to call 'things' comprehended all that we nowadays express in the term 'modern surgery.'"[1]

But Lister did not retire from hospital work when he became a baronet in 1883. He did not terminate his active work in King's until the year 1893.

At the annual meeting of the College of Surgeons of Australasia, in March, 1930, the Fellows presented Hamilton Russell with his portrait. In making the presentation Sir Henry Newland, the president, said: "As becomes a disciple in person of Lister, the great master and maker of modern surgery, Hamilton Russell is known to be humble-minded and modest; to have wisdom and foresight; to be honest in his desire to find truth; and to be stainless in word and deed." In acknowledging the presentation of an excellent oil portrait, the recipient spoke warmly of his good fortune in having been "a student in the hands of the greatest scientific surgeon the world has known." And he added: "He was something more than a great surgeon; he was a great idealist, who set no bounds to the loftiness of his ideals. From him I learned other things than the mere science of surgery. He told me that the profession I had chosen was the most exalted of all callings . . . and that the operating theatre of the hospital was a place more sacred than a cathedral. . . . With the memory of such a master ever present with me, I could not possibly stand here and accept this splendid gift at your hands without in spirit laying it at his feet."

Like all who came in direct contact with him, Hamilton Russell was inspired by Lister with a love of learning, a patience and constancy in the pursuit of truth, a sincerity of thought and word, and a lofty idealism. Like his great master, he was devoted to children, and was a life-long friend to his pupils and all his junior colleagues. He very aptly, in one of his addresses, quoted some lines of William Watson as applying to his own old chief. All who have in any way been connected with Hamilton Russell will agree that they also well describe the feelings of those who were privileged to be his fellow students, his pupils, his colleagues, his friends, or his patients:

> "'Tis human fortune's happiest height to be
> A spirit melodious, lucid, poised and whole;
> Second in order of felicity
> I hold it to have walked with such a soul."

THE LATE SIR WALTER FLETCHER

Dr. TH. MADSEN, president of the League of Nations Health Committee, writes from the State Serum Institute, Copenhagen:

Among the many who have felt the much too early death of Sir Walter Fletcher as a very painful loss must also be counted the Health Organization of the League of Nations. In a variety of ways Sir Walter Fletcher gave us advice and assistance of important consequence, and I would particularly emphasize the interest which from the very first he took in the work that is being done by the Permanent Commission on Biological Standardization. As you will be aware, some of its most important activities are concentrated in the National Institute for Medical Research at Hampstead, under the leadership of Sir Henry Dale and his highly efficient staff, and these activities have always had the advantage of Sir Walter Fletcher's active and able support. For these reasons the Health Organization feels deeply indebted to him, and will always cherish his memory.

[1] *Journal of the College of Surgeons of Australasia*, July, 1930.

THE LATE MR. FRANK JEANS

The first part of the funeral service for the late Mr. Frank Jeans was held in Liverpool Cathedral on June 23rd, in the presence of a large congregation, including many representative members of the University, the Royal Infirmary, the Medical Institution, and the medical profession generally. We print below extracts from personal appreciations written by leading colleagues in Liverpool.

Professor R. E. KELLY writes: Always a surgeon of broad interests, his chief work centred in urology, a specialty in which he so excelled that he was elected president of the Urological Section of the Royal Society of Medicine, an honour of which he was very proud. In many ways Jeans was a true pupil of Banks. Each in his turn was the best after-dinner speaker in our city. Jeans had a fund of humour of a whimsical flavour all his own, while his rapier-like wit and felicitous turn of phrase were a constant delight. He was very much loved, and will be greatly mourned. A generation of medical students will remember what he said when much of their medical teaching has faded into the twilight of forgotten things.

Professor JOHN HAY writes: We knew him as a man of great courage, in whom there was nothing mean or paltry, outspoken, fearless, and with a soul full of kindliness. His was a fine, big, generous nature, permeated with that rare quality, the gift of charity. When he spoke it was as a master of happy speech and felicitous phrases, and his friends and students will always remember with pleasure and profit the witty aphorisms with which he enlivened his conversation. But behind the wit and the humour was sound judgement, based on wide knowledge and an uncanny understanding of human nature, and to him to understand was to forgive.

We regret to announce the death, on June 24th, at Clapham Park, S.W., of Dr. J. GRAY DUNCANSON, at the age of 62. He was the younger son of the late Rev. P. C. Duncanson, and was educated at Hamilton, Glasgow Academy, and Glasgow University, where he passed his final examination for the M.B. and C.M. with commendation at the age of 20, graduating when 21. He acted as assistant to Dr. Gowans of South Shields, and on returning to Glasgow was appointed resident medical officer in the Victoria Infirmary. He then paid an extensive visit to the East, and in 1894 carried on a large general practice in the Woolwich, Shooters Hill, and Blackheath district with his elder brother, Dr. J. C. Duncanson. In 1914 he joined the R.A.M.C., and organized the Auxiliary Hospital, Woolwich, later commanding the medical division at the Royal Herbert Hospital. Proceeding to France he became registrar, and organized in great measure No. 72 General Hospital, Deauville. He rose rapidly to the rank of major, and was twice mentioned in dispatches. From 1920 he held the appointment of regional medical officer at the Ministry of Health, which work he was carrying on at his death. Dr. Duncanson had been secretary and vice-president of the Therapeutical Section of the Royal Society of Medicine, and for some years he was a member of the National Formulary Subcommittee of the Insurance Acts Committee.

The following well-known foreign medical men have recently died: Geh. Med. Rat. Professor RODERICK STINTZING, formerly director of the Medical Clinic at Jena, aged 80; Professor C. E. OVERTON, emeritus professor of pharmacology at Lund, aged 68; Dr. ROBERT SCHELLER, extraordinary professor of Hygiene at Dresden, aged 57; Lieutenant-General PAUL DEMOLDER, inspector of the health service of the Belgian Army and Commander of the Order of St. Michael and St. George, and Commander of the Legion of Honour; Dr. F. G. GADE, formerly editor of *Norsk Magasin for Laegevidenskaben*, aged 73; Dr. EDOUARD JULIAN, co-editor of *L'Intermédiaire des Chercheurs et Curieux*, aged 59; Dr. V. HUTINEL, formerly professor of children's diseases in the Paris Faculty of medicine and Commander of the Legion of Honour; and Dr. R. SOUTTER, a Boston orthopaedic surgeon.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

OPENING OF NEW BUILDINGS

The new buildings of the Medical School of King's College Hospital, Denmark Hill, were opened on July 4th by H.R.H. Prince George. Admiral of the Fleet Earl Beatty, the new chairman of the hospital committee of management, presided over the ceremony, which was attended by the Vice-Chancellor of the University of London, the Mayors of Camberwell and Lambeth, and the members of the school and hospital staffs. Lord Beatty reminded the gathering that King's College came into being in 1829, the Medical Faculty in 1830, and King's College Hospital in 1839. Until the hospital was founded the medical students had had to walk the wards of other hospitals. The hospital was in proximity to the College in the Strand until 1913, when it was removed to Denmark Hill. A few years ago it was decided to celebrate the centenary of the Medical School by taking in hand a much-needed extension, and the new buildings resulting from that project he asked the Prince to open.

Prince George said that medicine and surgery, with all their specialized branches, were progressing steadily year by year, and to keep pace with this progress the task of the teacher and the student alike grew ever more exacting. It was therefore essential that the student should take full advantage of the modern methods of medical education. But the school had another function in addition to the training of students—namely, the study of disease and research into its causes, with the object of advancing its treatment and prevention. To celebrate the centenary of the school the authorities had wisely decided to extend its facilities for the exercise of both these functions. He added that the records of the school during the past one hundred years contained the names of many distinguished physicians and surgeons, but two of them deserved special mention—namely, Lister, the association of whom with King's College Hospital and School for sixteen years would ever make it famous, and David Ferrier, who, in its neuro-pathological laboratories, carried out his great researches into the functions of the brain.

The Dean (Dr. J. A. Drake) then gave a brief account of the new buildings. The decision to extend the Medical School, he said, was not prompted only with the object of celebrating the centenary; additional accommodation had become essential owing to the increased number of students. In planning the new buildings both the education of the student and the necessities of research had been kept in mind, and provision had been made for further extension should this be desirable in the future. First and foremost, there was a large pathological museum of modern design; additional class-rooms had been provided; a large laboratory had been built and equipped for biochemistry, and a number of smaller laboratories would be at the disposal of the medical and surgical staff, and also of younger men who were qualified to use them and anxious to investigate any special problem of disease. In addition there were large common rooms for men and for women students, and a refectory hall, which could also be used for special lectures and meetings, and for such events as the annual opening ceremony of the winter session. The cost of the new buildings was approximately £40,000, towards which £10,000 had been voted by the Court of the University of London. Other sums had been collected from well-wishers by the Dean Emeritus (Dr. Willoughby Lyle), and the building fund had also been greatly increased by the policy of financial conservatism which had been pursued by the school for some years past, but a building debt of approximately £5,000 remained.

An inspection of the school was then made by the general company. The teaching museum, while allowing a complete general view, is arranged in separate bays for classification purposes and for the instruction of students in the various branches of medicine, surgery, and obstetrics. The biochemical research laboratory has been constructed on an additional floor over the original

students' pathological laboratory, and the work in it will be run in conjunction with the reconstructed diabetic clinic of the hospital. There is also a dental museum, which will provide all the accommodation necessary for the increasing number of specimens which are being collected by a growing dental school.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

THIRD M.B.—(*Part I, Surgery, Midwifery, and Gynaecology*): S. T. Anning, T. M. Bell, N. B. Betts, W. R. Billington, G. O. A. Briggs, J. C. Buckley, F. Clifton, E. L. Cohen, W. J. B. de Gruchy, J. H. Dixon, A. B. Evans, S. M. Evans, G. L. Foss, W. R. Gavin, W. E. F. Gough, E. M. Griffin, E. R. Hargreaves, N. H. Harwood-Yarred, J. D. Hay, E. C. Herten-Greaven, G. T. Hindley, A. C. L. Houlton, W. R. S. Hutchinson, L. G. Irvine, G. H. Jennings, A. Kekwick, J. H. Lankester, J. C. Lee, R. S. Lewis, W. H. Lewis, M. K. Martyn, F. S. A. Maw, W. B. Mumford, W. F. Nicholson, G. S. W. Organe, E. W. Price, E. G. Pyne, L. R. J. Rinkel, G. C. D. Roberts, H. J. M. Robinson, M. A. Rugg-Gunn, J. H. Shakespeare, J. Smart, J. T. W. Spiridion-Kliszczewski, S. M. Thompson, O. A. Trowell, J. G. Vincent Smith, E. O. Walker, G. E. Walker, H. C. M. Walton, W. F. Walton, G. L. Ward, V. H. Wilson. *Women:* P. L. Holliday, F. C. Naish, M. C. A. Robson, R. A. Rushton, E. D. Thompson. (*Part II, Principles and Practice of Physic, Pathology, and Pharmacology*): G. L. Alcock, S. T. Anning, W. C. Barber, H. Barcroft, G. F. Barran, C. G. Batty-Smith, W. T. C. Berry, E. J. M. Bowlby, G. O. A. Briggs, K. L. Buxton, R. Cairns, C. M. Carr, A. H. Charles, E. L. Cohen, A. G. Cross, W. Dykes Bower, G. L. Foss, P. H. R. Ghey, J. N. Groves, M. I. A. Hunter, W. R. S. Hutchinson, L. G. Irvine, J. G. Jones, D. Kyle, A. W. Langford, A. B. MacGregor, W. S. McKenzie, T. C. Maling, J. W. Maycock, A. Miller, M. P. Morel, J. G. More Nisbett, H. J. V. Morton, B. C. Murless, R. Q. Parkes, E. W. Price, J. S. M. Pringle, S. A. Propert, I. G. Robin, G. Scott, E. Sharp, E. P. Sharpey-Schafer, D. W. Smithers, J. G. C. Spencer, R. A. Sykes, E. W. Taylor, G. W. Thomas, H. B. Tipler, O. A. Trowell, T. M. Tyrrell, G. I. Watson, R. H. H. Williams, J. Wilson. *Women:* D. K. Emery, M. Sutcliffe.

UNIVERSITY OF BIRMINGHAM

At a congregation held on July 1st the following medical degrees were conferred:

M.D.—F. H. Healey.
M.CH.—W. Gemmill, B. Lloyd.
M.B., CH.B.—*D. M. Brown, *†C. S. Whitehouse, H. C. Aston, G. R. Clarke, A. C. Edwards, R. E. P. Field, J. G. H. Frew, A. Hemming, ‡J. Montgomerie, Emma D. N. Part, F. J. Rutter, W. P. Stevens, J. L. Whatley.

* Second-class honours. † Distinction in surgery.
‡ Distinction in medicine.

The following scholarships and prizes have been awarded: *Queen's Scholarships:* (Third year) L. W. Aldridge, (fourth year) H. B. Hunt, (fifth year) J. S. Mitchell, (final year) C. S. Whitehouse. *Arthur Foxwell Memorial Medal:* (Final year) J. Montgomerie. *Sampson Gamgee Memorial Medal for Surgery* (final year) and *Priestley Smith Prize for Ophthalmology* (final year): C. S. Whitehouse. *Russell Memorial Prize:* O. A. Trowell. *Peter Thompson Prize in Anatomy:* (Third year) E. J. Goldman.

UNIVERSITY OF DURHAM

At the Convocation held on June 27th, presided over by the Chancellor, Lord Londonderry, the honorary degree of D.C.L. was conferred on Lord Horder, M.D., F.R.C.P., physician-in-ordinary to the Prince of Wales and senior physician to St. Bartholomew's Hospital.

UNIVERSITY OF SHEFFIELD

Constance N. Jenkinson has been approved for the degree of M.D.

UNIVERSITY OF GLASGOW

At a meeting of the Senate on June 30th Professor D. F. Fraser-Harris, M.D., D.Sc., was awarded the triennial prize (for 1932–3) in the history of medicine for an essay on "Antiseptics before Lister."

UNIVERSITY OF WALES

The following candidates have satisfied the examiners in the examination indicated:

DIPLOMA IN PUBLIC HEALTH.—(*Part I*): G. J. Roberts, Jean J. Smith, Anne E. Williams-James.

NATIONAL UNIVERSITY OF IRELAND

HONORARY DEGREES

The Senate at its recent meeting decided that honorary degrees, as follows, should be conferred in connexion with the forthcoming Annual Meeting in Dublin of the British Medical Association:

LL.D.

Professor T. Gillman Moorhead, M.D., P.R.C.P.I., as President of the Royal Academy of Medicine in Ireland, and in recognition of his eminence in his profession.

Sir Humphry Rolleston, Bt., G.C.V.O., M.D., D.Sc., LL.D., in recognition of his services as late Regius Professor of Physic at Cambridge University, and of his association with the National University of Ireland as an extern examiner.

M.D.

Sir Robert Bolam, LL.D., M.D., F.R.C.P., in recognition of his work as former Chairman of Council of the British Medical Association.

Sir Henry Brackenbury, LL.D., M.R.C.S., as Chairman of Council of the British Medical Association.

D.Litt.

T. Percy C. Kirkpatrick, M.D., F.R.C.P.I., in recognition of his contributions to literature.

D.Sc.

Professor Joseph Barcroft, F.R.S., in recognition of his eminence as a physiologist, and of his long association with the University as an extern examiner.

Rufus Cole, M.D., Director of the Rockefeller Medical Research Hospital, New York City, in recognition of his eminence in medical research.

Professor Dean Lewis, M.D., in recognition of his work as President of the American Medical Association.

Professor Thomas H. Milroy, M.D., B.Sc., LL.D., Professor of Physiology in Queen's University, Belfast, and for many years extern examiner in the National University of Ireland.

Sir Edward Sharpey-Schafer, LL.D., Sc.D., F.R.S., in recognition of his contributions to scientific literature.

D.Sc. (Public Health)

Professor J. M. Beattie, M.D., in recognition of his services to public health, and of his association with the University as an extern examiner.

Sir Leslie Mackenzie, LL.D., M.D., F.R.C.P.Ed., in recognition of his services to public health.

Sir John William Moore, M.D., F.R.C.P.I., D.P.H., in recognition of his services to public health, and as Past-President of the Royal College of Physicians of Ireland.

M.Ch.

John F. O'Malley, F.R.C.S., a distinguished former student of Queen's College, Galway, and in recognition of his eminence as an oto-rhinologist.

Sir Hugh Rigby, Bt., K.C.V.O., M.S., F.R.C.S., in recognition of his eminence as a surgeon.

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.B., B.CH., B.A.O.—J. J. Linehan (second-class honours), J. S. Kelleher, M. F. Kelleher, J. G. O'Sullivan. (*Part I*): C. J. Cantillon, P. J. Geoghegan, H. L. Lentin, J. P. O'Leary. (*Part II*): M. Flavin.
M.D.—J. D. Riordan, R. C. Webster.
D.P.H.—Mary C. O'Connell.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Primary Fellowship Examination

The following have been successful at the First Professional Examination for the Diploma of Fellow:

E. S. Allin, G. N. Bailey, M. Baillie, Alice J. M. T. Barnes, P. Baron, R. J. V. Battle, B. J. Bickford, A. N. Birkett, A. W. Bone, Arabinda Chaudhuri, J. A. Cholmeley, E. J. Collins, W. S. Diggle, D. B. Fraser, K. D. Fraser, O. M. Galal, S. Glaser, H. C. P. Gunewardene, T. S. Heslop, L. J. Honeywill, J. S. Horn, L. J. Horn, J. Hughes, D. W. Jolly, H. Josephs, Marjorie F. Landau, V. D. Logue, J. N. Madan, I. Magdi, I. W. Matheson, D. N. Matthews, B. W. Nairn, W. McN. Niblock, J. C. Nicholson, G. W. Palmer, M. M. Pandya, Dorothy J. Perkins, S. Rameshwer, E. P. Rigby, Elaine M. K. Salmond, D. M. Samuel, D. A. Sanford, J. Scholefield, A. K. Sen, B. K. Sheorey, J. F. Shepherd, M. Z. R. Siddiqui, D. Slome, T. M. Smith, R. R. S. Strang, S. Sunkavally, W. H. Sweet, H. G. Ungley, J. R. Vaid, D. Whitteridge, D. Wilkie, B. L. Williams, R. H. Young.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—J. L. Cope, S. A. de Souza, H. M. el Magidi, T. E. Mitchell, P. J. Purcell.
MEDICINE.—W. H. Ekin.
FORENSIC MEDICINE.—E. Cohen, S. Gurevich, S. G. Nathan, A. W. Turner.
MIDWIFERY.—E. C. Dax, T. Gardner, A. E. Glanvill, N. C. Lendon, R. M. Outfin.

The diploma of the Society has been granted to Messrs. W. H. Ekin, A. E. Glanvill, S. Gurevich, and T. E. Mitchell.

The Services

Lieut.-Colonel H. M. J. Perry, O.B.E., R.A.M.C., has been appointed Honorary Surgeon to the King, and is promoted brevet-colonel, vice Major-General H. Ensor, C.B., C.M.G., C.B.E., D.S.O., late Royal Army Medical Corps (ret.).

R.A.M.C. COMMISSIONS

Twenty-five permanent commissions in the Royal Army Medical Corps will be offered on July 27th, and applications should reach the War Office not later than July 21st. Candidates will be selected for commissions without competitive examination, and will be required to present themselves in London for interview and medical examination. They must be under 28 years of age on August 1st, 1933, and registered under the Medical Acts. All particulars may be obtained from the Assistant Director-General, Army Medical Services, the War Office, Whitehall, S.W.1.

DEATHS IN THE SERVICES

Major Robert George Thompson, R.A.M.C. (ret.), died on May 15th, aged 71. He was born at Cork on November 29th, 1861, and was educated at Queen's College, Cork, graduating M.D., M.Ch. in the Royal University of Ireland in 1883. Entering the R.A.M.C. as surgeon on May 30th, 1885, he reached the rank of major after twelve years' service, and retired on January 7th, 1903, but rejoined for service on the outbreak of the great war on August 6th, 1914. He served in Burma in 1885–7, receiving the frontier medal with a clasp; in Sierra Leone in 1898–9, in the Karene expedition (medal with clasp); and in the South African war, taking part in operations in Cape Colony in 1901.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Ministry of Health Vote was chosen for debate in the House of Commons this week. Discussion also arose on the Foreign Office Vote, the Board of Trade, the Forestry Commission, and the proposed special grant of £500,000 to distressed areas.

In the House of Lords on June 28th the Royal Assent was signified to the Finance Act, the Pharmacy and Poisons Act, and other measures. No day has yet been appointed for the Pharmacy and Poisons Act to come into force.

The Samaritan Free Hospital for Women Bill was read a first time in the House of Commons on June 28th.

On July 4th, in the House of Lords, the Manchester Royal Infirmary Bill was read a second time.

Superannuation of Mental Hospital Officers

On June 28th the House of Commons in committee considered the Local Government and Other Officers Superannuation (Temporary Provisions) Bill On Clause 1 ("Certain reduction in remuneration to be disregarded for purposes of superannuation") Mr. SHAKESPEARE, for the Ministry of Health, accepted an amendment, moved by Sir Henry Jackson, to add after the word "computing" the words "for purposes relating to superannuation." Further drafting amendments were made without discussion, and the committee agreed to substitute September 1st, 1931, for October 1st, 1931, as the start of the period to which the Bill applied. Sir Henry also proposed that the Bill should cover cases where reductions of salary were made for the first time after October, 1933. Mr. Shakespeare could not accept the amendment, because by April 1st, 1932, the various associations had been told by the Ministry that if any further arrangements regarding pensions were made they would be *ultra vires*. The amendment was negatived. Mr. GREENWOOD said he had an amendment to make it clear that officers or servants to whom the Asylum Officers Superannuation Act, 1909, applied should be in the Bill. There was doubt whether an understanding between the Mental Hospitals Association and those employed at mental hospitals was a bona fide understanding within the terms of the Bill. It might be that the Mental Hospitals Association had no authority to impose any understanding it might reach with the British Medical Association or the Mental Hospital Workers' Union. It now appeared in the opinion of the Ministry of Health that, as regards this section of the public service, an understanding was not an understanding. The Minister had refused to discuss this question with the organizations concerned. Mr. GREENWOOD thought it clear that there had been an understanding between the Mental Hospitals Association and bodies of officers and servants that, in consideration of voluntary reductions of salaries and wages, superannuation rights should be maintained. Mr. SHAKESPEARE replied that asylums officers would be treated exactly as anybody else. They would be included in the Bill if, in fact, an understanding was made in good faith between the visiting committees and their officers. If agreements had been reached between national bodies that would be evidence that there had been an understanding. Local agreements would be considered too.

Further, on Clause 1, Captain ELLISTON moved an amendment designed, as he explained, so that local authorities should have a chance to reconsider their position in respect of the Bill and to adjust the superannuation in the case of those persons whose pensions they wished to secure. He said that in September, 1931, on the publication of Memorandum No. 1122 of the Ministry of Health, the Association of Mental Hospital Workers consulted the British Medical Association and the Royal Medico-Psychological Association and other bodies interested, and submitted a scale of reductions, which was accepted by the visiting committees. In due course the Ministry of Health pointed out that, subject to the amendment of the Asylum Officers Superannuation Act, the pensions must be based on the actual salary paid. Of sixty-six hospitals outside London nine made no reductions and were unaffected by this Bill, twenty-four continued to make superannuation deductions based on the original scale, and twenty-seven acted on the advice of the Ministry. The Bill whitewashed or indemnified the hospitals which ignored the Ministry's advice, while the twenty-seven which acted in accord with it would be outside the terms of the Bill. If that were accepted, injustice would be done to a large number of local government officers. The final circular of the Ministry, issued three months ago, said that unequal treatment would give rise to discontent among the officials. Mr. SHAKESPEARE could not accept the amendment. He knew the interest Captain Elliston took in these cases. The amendment struck at the principle of the Bill. It would bring in cases that were not made with the understanding that a cut in remuneration should not affect pensions. The amendment was unacceptable because the principle was applied first to personal pension. The amendment was withdrawn. Mr. Shakespeare gave Mr. Greenwood an assurance that asylum officers, being appointed by the council or visiting committee, would be within the scope of the Bill.

The Bill then passed through committee, and was set down for report.

The later stages of the Local Government Superannuation Bill was set down for July 5th in the House of Commons.

Prison Governors and the Health of Prisoners

In moving a Vote for Police in England and Wales on June 30th, Sir JOHN GILMOUR said that traffic offences, mostly connected with motor cars, accounted for 43 per cent. of all criminal proceedings in 1931. There had been in recent years a decrease in such offences as drunkenness and sleeping out. Broadly speaking, there was improvement in social conditions and social behaviour. In crimes involving the taking of life there had been no increase over the past twenty years. Lady ASTOR said that sexual offences against young persons were increasing. Offenders—men who were not normal—were sent to prison, came out, and again committed these appalling offences. There should be some other way of treating such a man. If there was no other way but prison he ought to be kept there for life. She urged the Government to bring in a Bill incorporating the recommendations made by the Committee on Sexual Offences against

Young Persons, by the Committee on the Treatment of Juvenile Offenders, and by the Committee on Persistent Offenders.

The Vote for Police was technically withdrawn to allow a discussion on the Vote for Prisons in England and Wales. General SPEARS raised the case of an ex-soldier who was sentenced at Coltshill to fourteen days' imprisonment for sleeping out. The man went to prison quietly, but would not keep his cell door closed, and was agitated. He was brought before the acting governor and sentenced to three days' solitary confinement on bread and water. Subsequently at the inquest the prison doctor, Dr. Humphrey, said the man might have had some degree of claustrophobia, which would be aggravated by being alone and silent. That doctor gave a certificate that the prisoner was a fit man, and in a fit condition to undergo solitary confinement. The acting governor had punished the prisoner for being in a state of frenzy. During the journey to the punishment cell he took a leap forward down a flight of stone steps, and received an injury on the back of the head, behind the ear, which was not noticed. He was put into the punishment cell and died in a few minutes. This occurred in Winson Green Prison. Sir FRANCIS FREMANTLE said that governors of prisons had an immensely difficult task. Things would be carried too far if the description "claustrophobia" were applied to the objection of every prisoner to being shut in a cell. Medically speaking, the general meaning of claustrophobia was clear but indefinite. It was extremely difficult to be sure of that condition in another person. There was some claustrophobia, some feeling against being shut up, in the case of every prisoner. What was required was a close supervision of prisoners of nervous temperament during the whole of their time in prison, without waiting until they complained. There should be constant reports to the governor. The ordinary procedure was for the medical officer to keep under his supervision all the prisoners at all times. Could the governor say that he was in touch with the medical officer in regard to this case, and was alive to the medical aspect? Earl WINTERTON asked Sir Francis Fremantle to say if an injury of the kind which caused this man's death would not have been noticed by persons standing near when he fell. Sir Francis said there were many injuries, as in the hunting field, where little was apparent at the time, but where, if there had been fracture of the skull, a man might drop dead within half an hour. In the Army the commanding officer was responsible for the health of his troops, and had to take the advice of the medical officer. Was a governor of the prison responsible for the life of his prisoners and in constant touch with the medical officer? Was there any scheme for some kind of training of prison governors in the care of health and mentality? Combatant officers in the Army had to go through a regular course in this. He did not believe there was any such training for prison governors before or after appointment.

Mr. HACKING said there was no need for further inquiry into the case raised by General Spears. The prisoner had twice previously been arrested for sleeping out, but had been discharged. After he got to prison he was unruly and almost violent practically the whole time. The prison doctor said clearly that claustrophobia was not the cause of the man's death. Some of his actions might have indicated claustrophobia, but on balance the prison doctor reached that conclusion. He was glad Sir Francis Fremantle had made a statement on the number of prisoners who made out they suffered from this complaint. The governor of any prison was responsible for the health of the prisoners, but was always guided in matters of health by the prison doctor. He also gave due weight, as in this case, to the opinion of his medical officer as regards the psychology of the prisoners. It was after the man was dead that the prison officer at Winson Green agreed that claustrophobia was a possible explanation of the frenzy. The jury came to the conclusion that no blame attached to anyone, and he—Mr. Hacking—could not see that any further action was necessary or desirable. Answering Sir Francis Fremantle, he said knowledge of health conditions, sanitation, and psychology was not demanded in the appointment of governors or deputy governors as a general rule, although some governors had special knowledge. Mr. Hacking mentioned that consideration was being given to the question of introducing legislation authorizing long sentences of detention for persistent offenders over 21.

Mr. RHYS DAVIES remarked that violence against the person and malicious and felonious wounding had gradually decreased since the war.

After discussion upon the treatment of young offenders the debate was adjourned.

University Degrees: A New Bill Introduced

In the House of Lords on June 29th Lord JESSEL secured permission to withdraw the Universities Spurious Degrees (Prohibition of Use and Issue) Bill. He said considerable objections had been taken to the Bill on account of its faulty drafting. He proposed, therefore, to introduce a new Bill, the University Degrees Bill, to make provision with respect to the unauthorized grant, issue, use, or assumption of university degrees, and with respect to the penalties to be imposed in respect of such unauthorized grant, issue, use, or assumption. The new Bill was then read a first time without debate, and ordered to be printed.

Disablement from Nystagmus.—On June 26th Sir J. GILMOUR, replying to Mr. Tom Smith, stated that the number of cases of nystagmus for which certifying surgeons in Great Britain gave certificates of disablement during the years 1920 to 1931 inclusive were: 1920, 2,216; 1921, 1,986; 1922, 4,047; 1932, 4,050; 1924, 3,446; 1925, 3,564; 1926, 1,863; 1927, 2,205; 1928, 2,515; 1929, 2,677; 1930, 3,248; 1931, 2,829. The tabulation of the figures relating to 1932 was not complete. In a certain number of the above cases the decision of the certifying surgeons had been reversed by the medical referee, but precise figures were not available.

Reports of Sitting Commissions.—On June 28th Mr. HORE-BELISHA furnished a list of committees and commissions still sitting. Among those which he expected to report in the course of the present year were the following: Workmen's Compensation (Industrial Diseases)—to inquire into the inclusion of turpentine poisoning and papilloma; Medical and Dental Branches of Defence Services—to investigate the cause of the shortage of officers and nurses; Mental Disorder and Sterilization of the Mentally Unfit—to consider the causation of mental disorder and the value of sterilization as a preventive measure.

Housing Progress in England and Wales.—Sir HILTON YOUNG told Mr. Price on June 29th that the number of houses completed in England and Wales during the years ended March 31st, 1932, and 1933, was:

	With State Assistance		Without State Assistance
	By Local Authorities	By Private Enterprise	
March 31st, 1932 ...	67,576	2,333	130,903
March 31st, 1933 ...	54,565	2,493	143,437

These figures referred to houses of a rateable value not exceeding £78 (£105 in the Metropolitan area).

The Boundary Limit of Ambulance Service.—Mr. DORAN asserted on June 29th that local arrangements all over the country did not permit an ambulance to render aid, even in the case of a serious accident, in an adjoining district. Sir HILTON YOUNG replied that he was unaware of this, but was causing inquiries to be made into the circumstances of a case recently reported, in which difficulty arose. He would consider whether any general action was necessary.

The Noise Nuisance.—During the twelve months ended May 31st, 1933, there were 2,930 prosecutions in the metropolitan police district for noise offences in connexion with motor vehicles.

Notes in Brief

In 1932 there were thirteen colliery explosions in the United Kingdom involving loss of life, the total deaths being sixty-nine.

Sir J. Gilmour states that the annual report of the Chief Inspector of Factories will be issued this month.

Medical News

The new Freemasons' Hospital and Nursing Home at Ravenscourt Park, Hammersmith, of which a short account was given in the *Journal* of May 13th (p. 840), will be formally opened on Wednesday, July 12th, by the King, who will be accompanied by the Queen.

The fifteenth annual meeting of the Mental Hospitals Association will be held at the Guildhall, London, on Wednesday, July 12th, at 11 a.m.

The next series of lectures and demonstrations on tropical hygiene, intended for men and women outside the medical profession proceeding to the Tropics, will be given by Lieut.-Colonel G. E. F. Stammers from July 10th to 19th. The synopsis and other particulars can be obtained from the secretary, London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1.

The Fellowship of Medicine announces a demonstration of *x*-ray films (especially suitable for M.R.C.P. candidates) by Dr. Peter Kerley, on July 13th, at 4 p.m., at 11, Chandos Street, W. In the absence of special courses attention is called to the individual clinics which are available daily by arrangement with the Fellowship. The number of post-graduates attending each clinic is strictly limited, the usual maximum being four. These clinics cover almost every branch of general medicine and surgery, and a full list is printed each month in the *Post-Graduate Medical Journal*, or can be obtained on application to the Secretary, Fellowship of Medicine, 1, Wimpole Street, W.1.

The quadrennial meeting of the International Council of Nurses will be held in Paris and Brussels from July 9th to 16th. Mlle L. Chaptal, president of the National Association of Trained Nurses of France, will preside, and some 5,000 trained nurses from all over the world are expected to attend. The National Council of Nurses of Great Britain has nominated Miss Alicia Lloyd Still, C.B.E., R.R.C., for the position of president of the International Council of Nurses, and has also extended an invitation to the council to meet in London in 1937. The council is to receive official recognition from the French and Belgian Governments, and members of the congress will be received by the King and Queen of the Belgians.

The third International Congress for Experimental Cytology will be held at Cambridge from August 21st to 26th. Among the topics to which special attention will be devoted are cell respiration and metabolism ; cell form and function as demonstrated by recent advances in tissue culture ; the electrophysiology of the cell ; the mechanism of development ; and the cultivation of animal and plant viruses. Those wishing to attend the congress are asked to communicate as soon as possible with Dr. H. B. Fell, Strangeways Research Laboratory, via Cherryhinton, Cambridge, from whom further information may be obtained.

The third congress of the Societas Oto-rhino-laryngologica Latina will be held in Paris from July 24th to 26th, with M. Justin Godard, former Minister of Public Health, as president of honour, and Dr. H. Bourgeois as president. A report will be made on nerve deafness. The subscription is 100 French francs, which should be sent to Dr. Chavanne, 5, Place des Cordeliers, Lyons.

The Congress of French-speaking Physicians will be held at Quebec on August 27th, under the presidency of Professor Rousseau, dean of the medical faculty of Laval.

The six opening papers in this month's *Practitioner* are devoted to the newly born child, his care and management, and some of the diseases and defects to which he is liable.

The issue of *La Medicina Ibera* for June 10th contains an illustrated account of the seventh international congress of military medicine and pharmacy recently held at Madrid, with portraits of the principal members.

The issue of the *Gazette des Hôpitaux* for June 24th is devoted to tuberculosis.

Sir Richard Gregory, Bt., Editor of *Nature*, has been elected a Fellow of the Royal Society under the provisions of Statute 12, which provides for the recommendation by the Council of " persons who, in their opinion, either have rendered conspicuous service to the cause of science, or are such that their election would be of signal benefit to the Society."

Applications are invited by the Association of Surgeons of Great Britain and Ireland for a surgical scholarship of the value of £350, to be held for one year. The object of the scholarship is to enable the holder to pursue a definite line of research or to study surgery in specified clinics, either at home or abroad. The election will be made in November, and applications must reach the secretary of the Association, 65, Portland Place, W., by September 30th.

All appeals against the sentences in the Lübeck trial have been rejected by the German High Council of Appeal.

Sir Henry Lunn Ltd. is arranging to run passenger aeroplanes to Dublin during the Annual Meeting of the British Medical Association. The return fare will be £13, which includes road transport between London and Heston aerodrome and also between Dublin aerodrome and the centre of the city. Special services can also be arranged at reduced rates if return booking is guaranteed. Sir Henry Lunn Ltd. also contemplates running a service by flying boat from Blackpool to Dublin. An announcement appears in our advertisement pages this week, and further particulars will be published in the *Supplement*.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin* ; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh* ; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Celluloid Splints

" J. H. L." inquires about the method of making the celluloid splints that are used for tuberculosis joints, among other purposes.

*** Pexuloid—non-inflammable celluloid—splints were described in the journals by the late Dr. F. E. Batten of the Children's Hospital, Great Ormond Street, some years before the war. Acetone is the solvent used, not ether-alcohol. Certalmid, which is stronger than pexuloid, was introduced by the Pensions Ministry for artificial limbs. The materials for making certalmid may be obtained from the General Surgical Company, Ltd., Glensurco House, Rosebery Avenue, E.C.1. It is scarcely necessary to state that these materials are used in bandage form applied on plaster casts of the affected parts. A final external varnish of celluloid solution is used as a finish.

Alopecia Areata

Dr. J. SANDISON CRABBE (Birmingham), in reply to "A. A. H.," writes: I wonder if your correspondent among the "usual remedies" has tried strong doses of ultra-violet rays preceded by the high-frequency glass vacuum tube. I have rarely failed to bring hairs on alopecia patches after twelve treatments. It generally shows up about a month after the final treatment.

Vehicle Sickness

"S. C." writes: May I suggest that "Yorkshire" (June 24th, p. 1138) should try "vasano" tablets (Schering).

Income Tax

Life Assurance Allowance

"R. H. J." has an insurance policy which provides for (*a*) a pension (or cash payment) at 65, (*b*) £50 per annum from the date of death until the date at which he would have reached 65, plus a lump sum representing his aggregate contributions accumulated at 3 per cent. per annum, and (*c*) disablement benefit. What relief can he claim for income tax.

⁂ Where death benefits are combined with others in a policy the income tax relief extends only to that portion of the annual premiums which represents payment in respect of death risk. The benefits covered by (*a*) and (*c*) above appear to be outside the scope of the relief, and the question to be decided is how much of that part of the premium paid in respect of (*b*) relates to death risk. The "lump sum" payment is within that category, and in R. H. J.'s case the inspector of taxes is willing to make the allowance (subject to the usual statutory restrictions) in respect of that benefit. There is another aspect of the question however. The Income Tax Acts provide that the relief shall extend to payments in respect of a deferred annuity payable on the death of the insurer or his wife, provided that the benefits are due under policies for securing a capital sum at death (which is not the case here) or are "made in connexion with any superannuation or bona fide pension scheme for the benefit . . . of persons engaged in any particular . . . profession." Whether the claim to the relief is saved by the latter proviso we do not know, and we suggest that "R. H. J." should put himself into communication with the head office of the company in question and ascertain whether representations have been made to the Inland Revenue Department for a ruling that the company's policies are within that proviso. If so the claim to relief would be appreciably greater than the amount which the inspector of taxes is at present willing to allow.

LETTERS, NOTES, ETC.

The Ionosphere

Less than ten years ago the Post Office was attempting to link up the Empire with a series of wireless stations transmitting on very long wave-lengths and employing enormous power—500 or so amperes—in the aerial. Marconi's discovery of the beam system altered the whole situation, and to-day the bulk of wireless telegraphy and telephony round the world is done by means of very short waves projected in the required direction at a slight angle from the surface of the earth and reflected downwards again by ionized regions of the upper atmosphere. The system is incomparably better than the long-wave method, and uses less power, but it is still subject to unexplained interference and fading-out, which may at times impair its efficiency. The reason for this weakness is that the system depends on a reflecting surface, which varies from hour to hour and from place to place according to laws which physicists have hardly begun to understand. Several of the men who are busy charting these mysterious regions—which have been named by Mr. Watson Watt the "ionosphere" by analogy with atmosphere—met at the Royal Society recently to compare notes in a discussion. Professor E. V. Appleton, whose name has been closely associated with the ionosphere in the loose term "the Appleton layer," described some of the results of the continuous research which has been going on at Slough by the method of wireless wave exploration. When a wave of a certain frequency is projected vertically upwards and strikes an ionized layer corresponding to its frequency it will be reflected back, having undergone certain changes which betray certain facts about the conditions it has encountered on the journey. For instance, it will have taken a certain time which, multiplied by the speed of light, will give, not the actual height, but the equivalent height of the layer which has reflected it. Some echoes are split into doublets by the earth's magnetic field, one half being of left-handed and the other of right-handed polarization. If a series of signals at a given wave-length are sent up and the wave-length is gradually shortened, the echoes will continue to return until a certain frequency is reached, when they suddenly stop. This means that the particular ionized layer has been penetrated, because the ionic density is not sufficient to reflect waves of that frequency. If, now, the frequency is raised still further, another point will be reached at which echoes start to return again. They are now being reflected from a more remote region of three or four times as dense an ionization as the nearer one. If the frequency is increased still further the waves will penetrate the whole ionosphere and go out into space. The lower region, about 105 kilometres above the earth, is called E; the upper region, at about 180 kilometres, is called F. In addition, intermediate layers of lower ionization than the E region are sometimes detected, but only when the E region happens to be absent for some exceptional reason. The limitation of the method is that if there should be a region of low ionization above a region of high ionization it will remain undetected. There is a kind of ledge on the F region: as the frequency is raised the ionization is shown to increase rapidly, then not so rapidly for a while, then rapidly again. The activity of the ionization of these levels varies with the times of day, for it is produced by the ultra-violet light of the sun. It is greatest at noon and falls off towards sunset, the minimum being reached about midnight. Ionization starts to build up an hour or so before ground sunrise, when the light is already reaching the sky sixty or a hundred miles up. The activity is greater in summer than in winter, and probably also follows the "sun-spot cycle" of eleven years, over which the sun's rays reach a maximum and minimum intensity. Sometimes quite unexpectedly high values are detected: three or four times the normal ionization for the region, and sometimes a powerful E region appears in the middle of the night. This nocturnal activity seems to be due to some kind of radiation which is bent round the curve of the earth by the magnetic field, and the abnormal intensity sometimes recorded in the summer may be due to thundery conditions. During the last few weeks these values have often been noted. It is obvious that progress in this, almost the latest branch of physical research, must be very significant for the perfection of imperial wireless communication.

A.A. London Route Map

For the motorist who requires assistance when driving into or out of London, or for traversing the metropolis in any direction, the Automobile Association has issued a route map covering an area of twenty miles square. The scale is one inch to the mile, and it has been found possible to name all the streets shown so that they are readily identified, and the routes are classified into "London Exits," "Recommended Routes," and "Lesser Roads." In view of their importance as landmarks, bridges, level crossings, golf courses, war memorials, railway stations, tramlines, etc., are specially indicated, while the Ministry of Transport numbers are given. Any motorist may obtain a free copy on request from the A.A., Fanum House, New Coventry Street, W.1.

A Warning

The local police ask us to publish a warning notice about a man who is visiting doctors in the Manchester area requesting them to subscribe to an ex-service men's athletic sports club, with which is associated a team of boy scout boxers. The literature that he presents is cyclostyled, and if carefully looked at is obviously faked. The police and the different ex-service organizations are anxious to stop him, and any practitioner whom he visits would do well to notify the police.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 42, 43, 44, 45, and 48 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 23.

The Alvarez Lecture

ON

THE UNITY OF GASTRIC DISORDERS *

BY

ARTHUR F. HURST, M.A., M.D.OXON, F.R.C.P.

SENIOR PHYSICIAN TO GUY'S HOSPITAL

I. THE HYPERSTHENIC AND HYPOSTHENIC GASTRIC CONSTITUTIONS

Investigations on the anatomy and physiology of the stomach of healthy young adults of both sexes show that considerable variations from the average occur under perfectly normal conditions. In about 80 per cent. these variations fall within comparatively narrow limits. This is shown, for example, in the results obtained by Bennett and Ryle (1921) with a fractional gruel test meal in a hundred healthy male students who had never suffered from any form of indigestion: the curves of free hydrochloric acid in eighty of them fell within the shaded area shown in Figs. 1, 3, and 4. The anatomy and physiology of the stomach in these 80 per cent. of healthy people are so perfectly adjusted to the exigencies of ordinary life that they are likely to reach old age without ever suffering from any form of chronic gastric disorder. Of the remaining 20 per cent., approximately one-half are born with what I have called the hypersthenic gastric constitution, and most of the other half with a hyposthenic gastric constitution—both conditions being often familial. The former have hyperchlorhydria (Fig. 1), which is often, though not invariably, associated with a short, high, rapidly emptying stomach. The latter have hypochlorhydria, which is generally associated with a long, low, slowly emptying stomach. Both constitutions are compatible with perfect health, but in unfavourable circumstances each predisposes to the development of certain organic diseases. In addition to the hyposthenic diathesis, about 3 per cent. of normal individuals have complete achylia gastrica—an inborn error of secretion—which is even more frequently familial than hyperchlorhydria and hypochlorhydria (Fig. 2).

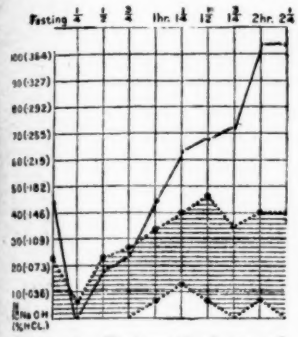

FIG. 1.—Test meal of one of the ten with hyperchlorhydria in Bennett and Ryle's 100 healthy students.

It has been suggested that Bennett and Ryle's group of healthy medical students cannot be regarded as an average sample of the population, as healthy people of all ages should be included. But if, as I believe, constitutional hyperchlorhydria and constitutional hypochlorhydria predispose to a variety of diseases, including gastric and duodenal ulcer, carcinoma of the stomach, and Addison's anaemia, which become more and more frequent as age advances, it is clear that the younger the group of healthy individuals examined the fairer sample they will be of the general population before it has become affected with diseases acquired as a result of constitutional predisposition. Thus very few of a hundred unselected young men with constitutional hyperchlorhydria, who may eventually develop gastric or duodenal ulcer, and none of those with constitutional hypochlorhydria who may later develop carcinoma of the stomach or Addison's anaemia, have already symptoms of these conditions; so that the hundred selected healthy young men will be fair samples of the total male population of their age. On the other hand, if the subsequent history of the hundred could be traced, from what is known of the incidence of these diseases about 11.5 per cent. would develop one or other of them, and almost all of these would be among the constitutional hyperchlorhydrias and hypochlorhydrias. Consequently a large group comprising healthy people of all ages, such as that investigated by Vanzant, Alvarez, and their colleagues (1932), is a selected group from which many of the individuals with the hypersthenic and hyposthenic gastric constitutions are excluded, and an inaccurate picture of their incidence is obtained, quite apart from the fact that owing to the effect of long-continued gastritis the number of people with acquired low acidity makes it impossible to estimate the true incidence of constitutional hypochlorhydria.

The secretion of mucus is the normal response of every healthy mucous membrane to chemical, thermal, and mechanical irritants. The presence of mucus in the ordinary fractional test meal is, however, an indication that gastritis is present, because nothing could be less irritating than the gruel meal. But it is a matter of common experience that mucus is rarely present in much excess, except in patients with hypochlorhydria or achlorhydria. This is due to the fact that the hypersthenic stomach is capable of secreting very little mucus compared with the hyposthenic stomach, whether in response to an irritant or as a result of inflammation (Bonis).

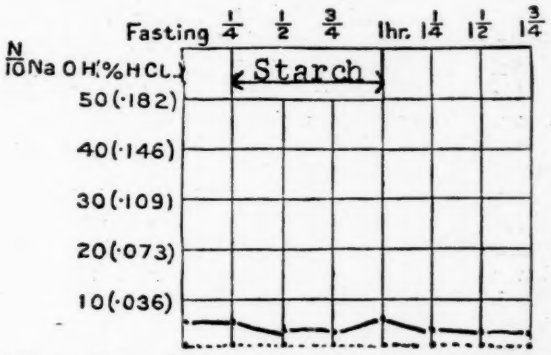

FIG. 2.—Test meal of one of the four with achlorhydria in Bennett and Ryle's 100 healthy students.

II. CAUSES OF GASTRIC DISORDERS

(A) MECHANICAL, CHEMICAL, AND THERMAL IRRITANTS

The mouth acts as the first line of defence in protecting the alimentary tract from damage by swallowed irritants. Food and drink are brought to the body temperature, chemical irritants are diluted, and lumps of food are broken up by chewing, and are intimately mixed with saliva; which softens hard particles and coats insoluble ones with mucus. An individual with good teeth, who takes the trouble to use them, and avoids grossly indigestible food and excess of alcohol, need not swallow anything until its thermal, chemical, and mechanical properties have been so altered that it will cause no irritation when it comes into contact with the gastric mucous membrane.

Though the majority of people are provided with a first line of defence which is potentially adequate, comparatively few make sufficiently good use of it. Food is swallowed without being properly chewed, with the result that the stomach is daily subjected to mechanical, chemical, and thermal irritants. It is also often damaged by excessive indulgence in alcohol, or by taking cocktails or spirits whilst fasting, when even a small quantity acts as a powerful irritant. Strong tea and coffee, curry and other spices, condiments, pickles, and excess of totally indigestible raw vegetable matter, taken in the mistaken idea that plenty of "roughage" is good for the health,

* Delivered at Washington on May 8th, 1933, before the American Gastro-Enterological Society.

may have the same effect. The stomach is frequently irritated by the unconscious swallowing of the "juice" of tobacco smoked in excess. Many people injure their gastric mucous membrane by taking drugs—often quite needlessly—for supposed constipation, rheumatism, and other self-diagnosed complaints, quite apart from those used in the treatment of definite chronic maladies, such as bromides, iodides, salicylates, mercury, digitalis, creosote, and copaiba. The contents of the duodenum and the upper end of the jejunum are gastric irritants. Gastritis is therefore a constant sequel of gastro-jejunostomy and partial gastrectomy, and is in fact partly responsible for the success of these operations, as it is an important factor in the reduction of the free acid present. Fortunately the gastritis is often completely latent, although it is a cause of post-operative symptoms much more frequently than is generally believed.

The stomach acts as a very efficient second line of defence for protecting the small intestine from irritation. Very hot and very cold food and drink are brought to the body temperature, and the gastric juice dilutes chemical irritants, such as alcohol, and softens hard particles. Peristalsis in the distal half of the stomach conveys the food to the pyloric sphincter, which does not relax if the food is insufficiently broken up, so that a churning process results, which does its inadequate best to perform the functions which the teeth should have carried out. The stomach, and especially the pyloric half in which the mucous membrane is most exposed to friction, is thus liable to suffer in its attempt to protect the small intestine. In the 80 per cent. of people with an average type of stomach the irritation of the mucous membrane is reduced to a minimum. In the 10 per cent. with constitutional hyperchlorhydria there is ample protection against mechanical irritants, and also against chemical irritants if taken when the stomach is full. But as hyperchlorhydria is generally associated with rapid evacuation, the stomach is empty for a much longer proportion of the day and night than in the average individual, so that there is more opportunity for the mucous membrane to be damaged by alcohol, tobacco, and drugs. In the 10 per cent. with constitutional hypochlorhydria and achylia the second line of defence is deficient; they are consequently very likely to develop gastritis, and in most cases the hypochlorhydria sooner or later gives place to achlorhydria. This is in spite of the attempt made by the stomach to protect itself by the secretion of mucus; but it is a remarkable fact that the type of stomach which, on account of its deficiency in gastric juice, most often requires a protective coating of mucus is the one which, as I have already pointed out, is most capable of producing it.

(B) INFECTION

Infected material is constantly swallowed by people with pyorrhoea alveolaris, infected tonsils, chronic pharyngitis, and sinusitis, and by children with adenoids. In achlorhydria, whether due to primary achylia, or secondary to chronic gastritis in individuals with constitutional hypochlorhydria, the antiseptic acid barrier of the stomach is lost, and streptococcal infection of the inflamed, and therefore abnormally vulnerable, mucous membrane of the stomach is very likely to occur. This is especially true for the most advanced stages of gastritis, in which the atrophy involves not only the secreting tubules but also the mucin-secreting cells, so that the mucous membrane is no longer protected from invasion by bacteria by a layer of mucus. In such cases a fractional test meal shows the absence of mucus as well as gastric juice. When gastric juice is secreted in normal or excessive quantities, and even when it is deficient in hypochlorhydria, swallowed bacteria are rapidly destroyed.

(C) HAEMATOGENOUS IRRITANTS

Many acute infections are accompanied by acute gastritis, which is often followed by chronic gastritis (Faber). This must be due mainly to the direct action of bacterial toxins conveyed in the blood to the gastric mucous membrane, which perhaps makes an attempt to excrete them. Possibly the toxins produced in the body tissues themselves in acute infections may be in part responsible (Kauffmann, 1929), just as the toxins of uraemia and those produced in the skin in extensive burns may cause gastro-duodenitis and acute ulcers. The vomiting in scarlet fever and the abdominal symptoms in gastric influenza are the result of acute gastritis, and acute ulcers and erosions are often found in the stomach and duodenum in fatal cases of a great variety of infections. The development of acute haematogenous gastritis is probably quite independent of any special type of gastric constitution, though it is only likely to become chronic in individuals with hyperchlorhydria, hypochlorhydria, or achlorhydria.

The causes of gastritis are so numerous and so common that few people can pass through life without being subjected to one or more of them. Fortunately the 80 per cent. of individuals with the average normal stomach are so well protected that they rarely develop gastritis as a result of these insults, but few of those with constitutional hyperchlorhydria and constitutional hypochlorhydria escape.

Faber (1908) was the first to show how common chronic gastritis is by injecting formalin into the abdomen immediately after death, in order to prevent the post-mortem changes, which had hitherto made it impossible to carry out satisfactory investigations on the condition of the gastric mucous membrane with necropsy material. Three lines of investigation have confirmed and extended his work—biopsy, gastroscopy, and radiology. Konjetzny has examined a very large number of specimens prepared immediately after partial gastrectomy, which he performs for all kinds of gastric disorders, whether there is external evidence of disease or not. Though his work appears to be totally unjustifiable surgically, it has led to results of the greatest interest and importance from a scientific point of view, as he has found various degrees of gastritis in every case. The results have been confirmed by many others, who have performed similar operations for patients with ulcer symptoms, whether an ulcer was found or not. Further confirmation comes from Professor M. J. Stewart of Leeds, and Dr. Keith Simpson at Guy's Hospital, in the investigation of specimens obtained by partial gastrectomy performed for ulcer or carcinoma, and of fragments of mucous membrane obtained from the edge of the stoma in the performance of gastro-jejunostomy for duodenal ulcer and pyloric ulcer. Schindler, Korbsch, Hohlweg, and Gutzeit have improved the technique of gastroscopy to such a degree that they have been able to perform several hundred examinations without any ill result. Though it is unlikely that the method will ever become widely used, it has led to the accumulation of a great deal of very valuable information about the appearance of the gastric mucous membrane in various disorders. It has been of special value when it has been possible to compare the gastroscopic and radiological appearances of the same case.

Lastly, the improved radiological technique, which we owe primarily to Forssell, and which has been specially developed by Berg, has led to the study of the folds of gastric mucous membrane and the recognition of departures from the normal associated with different varieties of gastritis.

III. EFFECT OF GASTRITIS ON GASTRIC SECRETION

The functional efficiency of an organ is always reduced when it is inflamed. In acute gastritis no gastric juice is secreted. This was admirably demonstrated by Beaumont (1833) in his observations on the effect of a drinking bout on Alexis St. Martin. In chronic gastritis the secretion is reduced to an extent which varies with the severity and the duration of the inflammation, the actual

amount of free acid present in the stomach in a test meal depending upon the constitutional type of stomach in each individual. Thus the hyperchlorhydria of individuals with the hypersthenic gastric constitution becomes less extreme, or may be replaced by a normal curve of acidity, or even, in exceptional cases, by hypochlorhydria. This is well seen in the gastritis accompanying chronic ulcer, as when medical treatment has resulted in the healing of the ulcer and the disappearance of the gastritis the acidity is almost always higher than it was before. Thus in sixteen cases of gastric ulcer and thirty-two of duodenal ulcer under my care, in which a second test meal was given at the end of treatment, the acidity had increased in all but eight, and six of these already had hyperchlorhydria and two high normal curves. The gastric cases comprised one achlorhydria which became hypochlorhydria, five high normals which became hyperchlorhydria, and one which remained unchanged, and five hyperchlorhydria, three of which became still higher, two remaining unaltered (Fig. 3). Of the duodenal cases one with hypochlorhydria became a high normal and one an extreme hyperchlorhydria, two low normals became high normals, one normal became high normal, and one

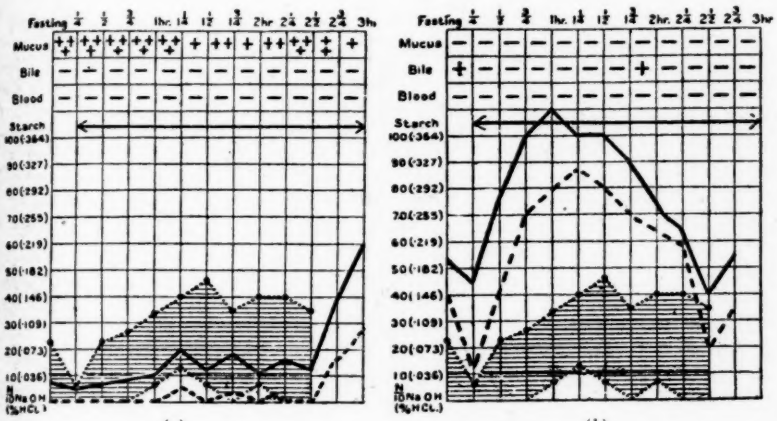

FIG. 3.—Duodenal ulcer with chronic gastritis. (*a*) July 20th, 1928; hypochlorhydria. (*b*) August 17th, 1928; after a month's treatment, gastritis disappeared and ulcer healed; hyperchlorhydria unmasked.

became hyperchlorhydria, seven high normals became hyperchlorhydria and one remained unaltered, and of twelve hyperchlorhydria eight became still higher, four remaining unaltered (Hurst and Venables, 1929).

The hypochlorhydria of individuals with the hyposthenic gastric constitution is almost always replaced eventually by complete achlorhydria. In most cases this can be overcome by removal of the exciting causes, an unirritating diet, and lavage every morning with dilute hydrogen peroxide. Thus in 82 per cent. of thirty-four of my cases of achlorhydria treated in this way free acid returned (Hartfall, 1932) (Fig. 4). The reduction in acidity in these cases is mainly due, as it is in hyperchlorhydria, to the effect of the inflammation on the activity of the secreting glands, but it is increased as a result of the excessive secretion of mucus which accompanies the inflammation. The mucus acts partly by its mechanical action in blocking the mouths of the secreting tubules and partly by its chemical action in combining with some of the free acid. The neutralizing effect is, however, comparatively slight, and due almost entirely to the sodium bicarbonate it contains and not to its own buffer action, as it almost completely disappears after the salt has been separated by dialysis (Bonis, 1930; Mitchell, 1931). In the 18 per cent. of cases in which the achlorhydria persisted after treatment the gastritis had presumably led to such a profound change in the gastric mucosa that recovery was impossible, and complete and permanent achylia resulted. It is clear that gastritis associated with high or normal acidity, so-called acid gastritis, is not an early stage of gastritis associated with achlorhydria, as has been suggested by Faber, Zweig, and others, nor is the former a result of prepyloric gastritis and the latter of fundus gastritis, as has been suggested by Porges and others. Both are due to the same causes, the amount of free acid depending upon the constitution of the individual concerned.

(A) GASTRITIS WITH CONSTITUTIONAL HYPERCHLORHYDRIA

I have already pointed out that hyperchlorhydria tends to protect the stomach from irritation when the first line of defence is inadequate. But the deleterious effect of friction on the mucous membrane of the distal half of the stomach when hard or large pieces of food are swallowed continues, and irritation by alcohol, tobacco, and drugs may occur during the many hours in which the stomach is empty. If even a mild degree of gastritis results from this, the mere presence of hyperchlorhydria is likely to aggravate it, as, although hyperchlorhydria is not itself a pathological condition, the excessive acidity

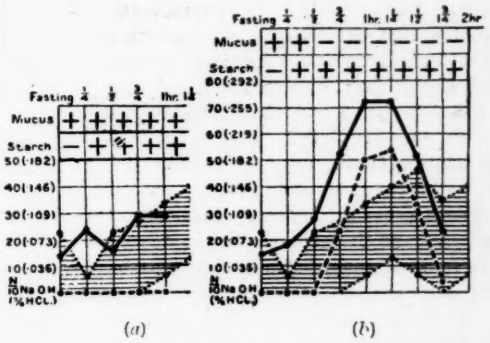

FIG. 4.—(*a*) Test meal in a case of Addison's anaemia on January 9th, showing achlorhydria and excess of mucus. (*b*) Test meal on April 2nd, showing normal acidity, and excess of mucus in only two fractions, after treatment by gastric lavage.

of the gastric juice is a potential danger. The healthy mucous membrane is always bathed in gastric juice, which is neither digested by its pepsin nor irritated by its free hydrochloric acid. After death, however, the mucous membrane is rapidly digested. During life localized necrotic areas may also undergo digestion, and possibly this also occurs in areas in which the circulation is temporarily arrested or very deficient before actual necrosis has occurred As peptic digestion is no more active with 0.3 per cent. than with 0.08 per cent. free hydrochloric acid, such digestion is not specially likely to occur in the presence of hyperchlorhydria. But although the living mucous membrane, even when abnormally vulnerable as a result of gastritis, can never undergo peptic digestion, it is very likely to be damaged by free hydrochloric acid if present in a strength greater than the average. The likelihood of this is still greater when the hyperchlorhydria is associated with hypersecretion, in which unusually strong acid continues to be secreted in the absence of food, which under ordinary conditions dilutes it and to some extent neutralizes it, owing to its alkaline reaction. According to Winkelstein (1933), the stomach secretes acid throughout the night in patients with ulcer, but never in normal people. Moreover, owing to the deficient power of secreting mucus, which is a characteristic of the hypersthenic stomach, the protection against damage afforded by a layer of mucus in the hyposthenic stomach is absent. It has been suggested that

the absence of mucus is due to its digestion by gastric juice, but mucus differs from other proteins in the extreme slowness with which it undergoes peptic digestion, and there is generally less organically combined hydrochloric acid with hyperchlorhydria than with the average normal acidity.

In the conditions already described, in which the failure of the first line of defence gives rise to chronic gastritis, the excessive acid in hyperchlorhydria gives the gastritis certain characteristics which are absent from that associated with hypochlorhydria and achlorhydria. It is very frequently associated with minute erosions, some of which may develop into acute ulcers, which may in turn become chronic ulcers. The condition may therefore be called ulcerative gastritis. When the hyperchlorhydria is associated with the rapidly emptying, short, high stomach which is often a feature of the hypersthenic gastric constitution, the duodenal bulb is equally involved, the condition thus being one of ulcerative gastro-duodenitis, in which a chronic ulcer is most likely to develop in the duodenum. When, on the other hand, the hyperchlorhydria is associated with a long, low, slowly emptying stomach, the main stress falls upon the stomach ; the gastritis is likely to be more severe and a gastric ulcer may develop, whilst the duodenum is spared. At the same time the gastric stasis leads to more prolonged contact of the entire gastric mucous membrane with any irritants it may contain, so that although the distal half of the stomach is still the part most severely inflamed, the fundus is more affected than in duodenal ulcer. Consequently, the power of secreting acids by the fundus glands may be directly impaired, while their stimulation is reduced owing to the deficient production of the gastric hormone by the antral mucous membrane in response to chemical and reflex stimulation. In gastric ulcer the hyperchlorhydria which is at first present thus tends to be more or less reduced, and in very chronic cases hypochlorhydria, and very rarely even achlorhydria, may result. With treatment, however, the acidity always rises, though sufficient permanent damage may have taken place to prevent a return to the original hyperchlorhydria. Owing to the familial incidence of the hypersthenic gastric diathesis it is common for gastric or duodenal ulcers to occur in several members of the same family (Hurst and Stewart, 1929).

It is interesting to note that both Hart (1919) in Germany and Stewart (1929) in England found chronic gastric or duodenal ulcers or scars of such ulcers in about 10 per cent. of all necropsies, this being also approximately the number of healthy young adults with hyperchlorhydria. It would appear, therefore, that an individual with the hypersthenic gastric constitution is almost certain sooner or later to develop an ulcer, though I have seen two men and one woman over 70 years of age with an extreme degree of hyperchlorhydria who had never had a symptom or sign of ulcer or any form of indigestion. It is true that hyperchlorhydria may no longer be present when a test meal is given, especially in the case of a gastric ulcer, but it was probably present when the ulcer first formed, perhaps many years earlier, and has since been masked by the coexistent chronic gastritis.

(B) GASTRITIS WITH CONSTITUTIONAL HYPOCHLORHYDRIA AND ACHLORHYDRIA

Bennett and Ryle found that already at the age of 20 4 per cent. of one hundred healthy students had achlorhydria, which must have been due either to constitutional achylia gastrica or latent chronic gastritis. Hartfall has recently analysed the results of fractional test meals given to 2,448 of my private patients. Excluding twenty cases of achlorhydria artificially produced by gastro-jejunostomy, twenty-one cases associated with carcinoma of the stomach, and fifty-one with Addison's anaemia, there remain 2,356 patients, of whom 242 (10.3 per cent.) had achlorhydria. From 10 to 19 the incidence was 4 per cent., which is identical with that found by Bennett and Ryle in their normal students ; there was a rise of 4 per cent. to the 30–39 period, and the same rise to the 40–49 period, but in the next three decades taken together there was a rise of only about 4 per cent. It can thus be concluded that all, or very nearly all, of the individuals with the hyposthenic gastric constitution, as well as a few with normal acidity, eventually develop achlorhydria as a result of gastritis. Gastritis with achlorhydria generally gives rise to no gastric symptoms, though it may occasionally produce a mild form of chronic indigestion, and it is not an uncommon cause of nausea.

In achlorhydria the excess of mucus is a poor substitute for gastric juice, and the consequent loss of the second line of defence leads to irritation of the small intestine, so that duodenitis and enteritis develop in addition to the gastritis. The mechanical and chemical irritation of the intestines explains why chronic and recurrent diarrhoea is often caused by achlorhydria, although in the majority of patients with achlorhydria the bowels are regular.

Swallowed bacteria flourish in the alkaline contents of the stomach, and may invade the mucous membrane, producing an infective gastritis, which may ultimately lead to atrophy of the mucous membrane. They also pass into the duodenum, which is normally sterile, but now swarms with bacteria. Knott (1927) has shown that the increased alkalinity of the intestinal contents allows bacteria which are normally confined to the colon to ascend the small intestine as far as the duodenum and stomach, both of which contain colon bacilli from the large intestine even more frequently than streptococci from the mouth. Chronic cholecystitis is generally a result of an ascending *B. coli* infection of the gall-bladder, which is especially likely to occur in the presence of achlorhydria (Hurst, 1932). This explains why free hydrochloric acid is absent from the stomach in about 50 per cent. of patients with gall-stones (Bonar, 1922). Achlorhydria is also a very important predisposing cause of intestinal infections, such as typhoid and paratyphoid fever, bacillary and amoebic dysentery, and cholera—the organisms of which are rapidly destroyed by the normal gastric juice—and its presence is therefore a constant source of danger to residents in tropical countries (Camps). The toxaemia which follows the intestinal infection resulting from achlorhydria is one factor in about 25 per cent. of cases of rheumatoid arthritis (Hurst, 1925 ; Miller and Smith, 1927), and in some cases of asthma, skin diseases, and other conditions associated with allergy, especially in children (Bray, 1931).

IV. EFFECTS OF GASTRITIS ON HAEMATOPOIESIS AND THE NUTRITION OF THE CENTRAL NERVOUS SYSTEM

The absence of free acid from the gastric contents may interfere with the assimilation of the iron in food, so that in individuals who take a diet in which there is only just enough iron for the needs of the body under the most favourable conditions of assimilation a simple achlorhydric anaemia develops (Faber, 1908), which differs from Addisonian (pernicious) anaemia in occurring almost exclusively in women, in whom menorrhagia is often a contributory factor, and in being curable by large doses of iron, whilst liver and stomach extract are entirely without effect (Witts, 1930).

Achlorhydria is found in about 99 per cent. of cases of the Addison's anaemia–subacute combined degeneration of the spinal cord syndrome, though it is now known that it is not the actual cause of it, the

absence of hydrochloric acid from the gastric secretion being associated with the absence of a substance, Castle's "intrinsic factor," required for the production of the natural stimulant of haematopoiesis and of another required for the normal nutrition of the central nervous system. The gastritis is the primary condition ; there is, consequently, often a history of chronic diarrhoea or other symptoms to which it has given rise, dating from months or years before the onset of anaemic or nervous symptoms, and in several cases the achlorhydria has been known to exist during this time. The frequent occurrence of Addison's anaemia and subacute combined degeneration of the cord in more than one member of a family is due to the familial occurrence of constitutional achylia gastrica and hypochlorhydria, which predispose to severe gastritis. Moreover, achylia is often present without any abnormality of the blood or central nervous system in relatives of patients with these diseases (Hurst, 1927 ; Conner, 1930 ; Wilkinson and Brockbank, 1930).

The first function of the gastric mucous membrane to suffer in gastritis is the secretion of hydrochloric acid. Consequently, in the majority of cases of achlorhydria pepsin is still secreted in normal quantity, the secretion of mucus is actually increased, and the production of the haematopoietic intrinsic factor is unimpaired. If the exciting cause of the gastritis continues to be at work when complete achlorhydria has developed, the gastritis becomes progressively more severe, especially if large numbers of virulent streptococci are swallowed from the mouth or throat. After a time the damage to the secreting tubules is so profound that they can never recover their power of secreting acid, even if all active inflammation ceases, and at the same time the secretion of pepsin becomes more or less impaired. The mucus-secreting cells take part in the general atrophic changes of the mucous membrane, so that mucus disappears from the test meal, its absence being a sign of the severity of the process, and not an indication that no gastritis is present. In this advanced stage of gastritis the intrinsic factors required for the normal activity of the bone marrow and nutrition of the central nervous system may ceased to be formed, and Addison's anaemia and subacute combined degeneration of the cord develop. In a small number of cases this function of the mucous membrane is impaired at an earlier stage ; thus in three of my cases of Addison's anaemia the secretion of free acid returned as a result of treatment of the gastritis, and six other similar cases have now been recorded. Moreover, in about 1 per cent. of cases of Addison's anaemia and subacute combined degeneration of the cord free hydrochloric acid is secreted. The haematopoietic and neurotrophic functions of the gastric mucous membrane are occasionally destroyed suddenly by an exceptionally severe attack of acute gastritis, the symptoms dating from an attack of food or corrosive poisoning, or from an acute infection (Hurst, 1926).

V. CARCINOMA OF THE STOMACH

I believe that carcinoma never develops in a normal stomach (1929). There is much evidence to show that in most of the 35 per cent. of cases in which free hydrochloric acid is present the carcinoma is secondary to chronic gastric ulcer. On the other hand, in the 65 per cent. of cases with achlorhydria the latter is a result of the associated gastritis and not of the carcinoma, and the carcinoma is probably a result of malignant degeneration of the chronically inflamed mucous membrane. Thus I have never seen a case—and I know of very few—in which achlorhydria has developed in a patient with carcinoma of the stomach, who was known to have free acid present at an earlier stage of the disease, although the secondary gastritis which must result from large ulcerated growths and the progressive destruction of the mucous membrane in extensive carcinoma would make it natural that such a change should occasionally be observed. There was no diminution in acidity in the three cases of gastric ulcer I have seen in which a test meal was given both before and after the onset of malignant degeneration. In one patient with ulcer-cancer who was kept comfortable by occasional lavage and an unirritating diet, the acidity actually rose in the course of six months. Polland and Bloomfield (1931) have recorded two similar cases. On the other hand, I have seen one case, and at least twenty others have been recorded, in which achlorhydria was known to be present from three to fifteen years before the development of cancer associated with achlorhydria.

Free hydrochloric acid is present in nearly all cases of carcinoma in which examination of the specimen obtained at operation shows unmistakable signs of originating in ulcer, whereas it is absent, and more extensive chronic gastritis is found, where no such signs are present. When a long history suggestive of ulcer is obtained free acid is generally present, but when the history is short and the carcinoma appears to be "primary" achlorhydria is found. The prospects of long survival after gastrectomy are better in cases with achlorhydria than with free acid (Hartman, 1921), though the reverse would be the case did those with achlorhydria represent a later stage of the same condition as those with free acid. Moreover, there is no relation between the size of a growth and the presence of achlorhydria, free acid being occasionally present with large inoperable growths and achlorhydria with very small, early, and removable ones (Polland and Bloomfield). I have seen a number of cases in which carcinoma of the stomach was preceded or accompanied by the development of Addison's anaemia or subacute combined degeneration of the cord, the gastritis having led to lack of the "intrinsic factor," and so caused the anaemia quite independently of undergoing malignant degeneration. It seems likely, indeed, that the incidence of carcinoma of the stomach in patients with Addison's anaemia, who are kept free from symptoms as a result of modern methods of treatment, will be abnormally high unless the associated gastritis is treated in spite of the absence of digestive symptoms.

CONCLUSIONS

I have brought forward evidence to show that the main organic disorders of the stomach ultimately depend upon the same exciting causes, which are so widespread in their incidence that very few people can reach old age without coming under the influence of one or more of them at some time in their lives. Fortunately, however, four-fifths of the population have stomachs which are endowed with sufficient resistance to escape damage, and it is only the remaining 20 per cent. who are likely, sooner or later, to develop some organic gastric disease.

If these views are correct, gastritis, gastric and duodenal ulcer, and carcinoma of the stomach could be prevented by the adoption of the simple hygienic measures required to avoid the exciting causes I have enumerated. It is, perhaps, too much a counsel of perfection to expect universal prophylaxis of this kind, but it might at any rate be provided for those people who can be recognized from their physical characteristics, or from their family histories, as being constitutionally liable to develop organic disease of the stomach.

Lastly, gastritis and gastric ulcer should be recognized much more frequently and at an earlier stage than in the past, and instead of simply dealing with the results of the former, such as achlorhydria or anaemia, the primary disease itself should also be treated, and steps taken to prevent its recurrence. We may thus hope that the

frequent failure of the physician to recognize cancer of the stomach sufficiently early for the surgeon to effect a cure will in the future be immaterial, owing to the success of the practitioner in preventing its development.

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TREATMENT OF CHRONIC INFLAMMATORY DISEASES OF THE MOUTH, PHARYNX, AND LARYNX BY LOCAL APPLICATION OF ULTRA-VIOLET RAYS

BY

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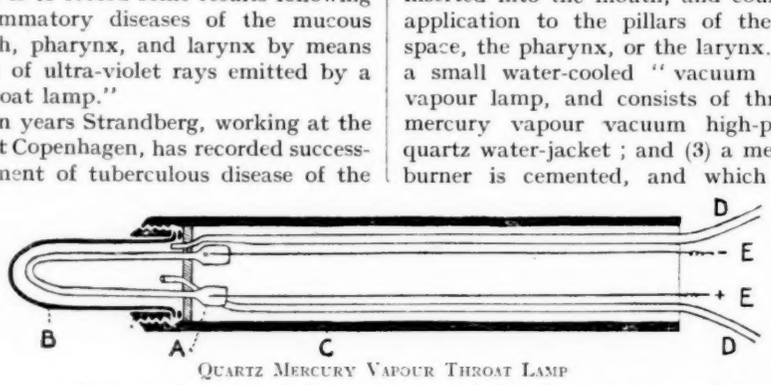
The object of this paper is to record some results following the treatment of inflammatory diseases of the mucous membrane of the mouth, pharynx, and larynx by means of the local application of ultra-violet rays emitted by a specially designed "throat lamp."

During the past fifteen years Strandberg, working at the Finsen Light Institute at Copenhagen, has recorded successful results in the treatment of tuberculous disease of the larynx, following the exposure of the skin of the whole body by general irradiation to the ultra-violet rays of the carbon arc. Cemach and de Wesselow have designed special quartz rod applicators attached to the water-cooled Kromayer lamp or to the carbon arc of the Finsen type, for the local application of ultra-violet rays to the larynx. Similar quartz silvered mirrors for the reflection of rays and other apparatus have been designed. All these apparatuses are cumbersome, and necessitate long exposures to the source of light, and this makes treatment tedious and tiresome for the sick patient.

In 1926 I designed a small water-cooled quartz mercury vapour lamp for the direct application of ultra-violet rays to the buccal cavity, the tongue, pharynx, and larynx. This apparatus was demonstrated in 1929 to the Section of Laryngology of the Royal Society of Medicine. Since then I have treated over sixty patients. The technique which is described is based upon my results and observations made during the treatment of these selected cases. The pathological conditions which have been treated may be classified under the following groups:

1. Chronic tuberculous ulcers of the tongue and palate.
2. Chronic tuberculous disease of the larynx.
3. Chronic glossitis and inflammatory ulcers of the tongue (leucoplakia).
4. Chronic inflammatory lesions of the pharynx and nasopharynx.



QUARTZ MERCURY VAPOUR THROAT LAMP

A, Burner and metal holder; B, quartz water-jacket; C, metal jacket; D, water-tubes; E, insulated leads. (The diagram is not drawn to scale.)

The value and scope of the treatment of many diseases of the mouth, pharynx, and throat by local ultra-violet irradiation is as yet little known to many oral surgeons and laryngologists. It is hoped that the extended clinical trial of this technique of treatment will confirm my results, and help to establish a valuable additional method of treatment for lesions which often resist other established methods.

TECHNIQUE OF METHOD

THE APPARATUS

This throat lamp was designed so that it could be easily inserted into the mouth, and could be brought by direct application to the pillars of the fauces, the post-nasal space, the pharynx, or the larynx. The lamp is essentially a small water-cooled "vacuum type" quartz mercury vapour lamp, and consists of three parts: (1) a quartz mercury vapour vacuum high-pressure burner; (2) a quartz water-jacket; and (3) a metal jacket, to which the burner is cemented, and which contains water-cooling apparatus, and also insulated leads carrying the electric current. The quartz burner is U-shaped and bent at its horizontal axis to an angle of 160 degrees. It is made of a thick-walled quartz tubing about 1.5 mm. in diameter. The internal diameter of the quartz tubing is 0.5 cm. One of the limbs of the U-tube is dilated at its terminal end. The burner is constructed on the same principle as the high-pressure-vacuum mercury vapour lamp, and operates on an electric current of 1 to 1.5 amperes and 80 to 120 volts between the electrodes (direct current only). The water-jacket is made of quartz, and is the shape and size of the adult thumb. It fits over the quartz burner and is oval in shape, measuring $6 \times 3 \times 2$ cm., leaving a space of 0.5 cm. surrounding the quartz burner in every direction. The jacket is made to taper gradually as its closed extremity; the open end is widened and made circular, so that it can fit tightly to the metal holder by means of a rubber washer and a circular screw cap. The jacket can easily be removed, and in this way the quartz burner can be thoroughly cleaned and a differently shaped jacket can be attached when necessary. The metal holder is made of nickel-plated metal and is circular in shape, roughly 3 cm. in diameter and 15 cm. in length. The quartz burner is soldered and cemented into this holder, and the electrodes are carried through it, being well insulated with rubber and non-conducting composition, and fused to two copper electric wires, also well insulated, so

as to carry the electric current from the electrodes and burner. In this way the conducting leads and electrodes are thoroughly insulated and made watertight. Two metal tubes 3 mm. in diameter are also carried through the metal holder for the circulation of water and cooling of the burner. One is an inlet tube, and passes into the cavity of the water-jacket for 3 to 4 mm. ; the other is an outlet tube. The inlet tube is connected by strong rubber tubing to a water tap, and the outlet tube has a rubber tube passing to a sink or basin. In a recent model apparatus I have designed an electrical motor water-pump is connected to a reservoir containing distilled water, and thus the lamp is cooled by the motor pump forcing water through its inlet and outlet tubes. The circulation of water must be thoroughly efficient, and the lamp must be tested every time before it is used for treatment. It must be perfectly cold when grasped by the hand after running for five to ten minutes. The danger of overheating or insufficient cooling of the lamp is important, for as a result the mucous membrane may be damaged and seriously burned. Further, the lamp will be overrun and the seals of the electrodes will melt and be destroyed. It is therefore essential to carefully check the cooling mechanism of the lamp.

Physical Nature of Rays Emitted

The lamp emits luminous and ultra-violet rays of wave-length from about 8,000 to 2,300 A.U. The infra-red and heat rays are completely absorbed by efficient water circulation. The spectrum of the lamp has the same characters as the quartz mercury vapour lamp, but is of relatively weaker intensity, since only an electric current of 80 to 100 volts and one ampere is transmitted. For this reason it is seen that the shorter ultra-violet rays in the region of wave-length 2,500 A.U. are relatively weaker in intensity and the longer ultra-violet rays in the region of wave-length 2,700 A.U. are stronger in intensity than those usually transmitted by the ordinary mercury vapour lamps working at an electrical potential of 2.5 amperes and 150 volts.

Manipulation of Lamp

Before the lamp is started the water is made to circulate and completely fill the jacket ; all air bubbles must be cleared. The current is switched on and the lamp started by tilting ; the arc should burn evenly in both limbs of the U-tube, and if the mercury column is uneven the lamp should be switched off and restarted until the columns are even and equal in both limbs. After it has been running steadily in a horizontal position for two to three minutes the arc is established, and the lamp will then keep alight when held in any position. Its outer surface must always be thoroughly clean, and this can be secured by employing a weak solution of acid, which must be washed and cleared by water before use. Rays from either the upper or lower surfaces, or the end of the lamp, can be used alone, by covering the remaining portions with small pieces of lead foil fixed by elastic bands. This is useful when only the tongue, palate, or the right or left tonsillar fossa is to be irradiated ; the remaining areas of mucous membrane can be easily protected from the rays by such simple means. After treatment is completed the lamp is cleaned by washing in water and rectified spirit, and then allowed to burn for two or three minutes, for the ultra-violet rays emitted have direct bactericidal action, and in this way the lamp is automatically efficiently sterilized.

Details of Administration

The area which is to be irradiated and the surrounding mucous membrane of the pharangeal wall should be anaesthetized by a local anaesthetic. I usually employ a 5 per cent. or 10 per cent. solution of cocaine hydrochloride in saline sprayed on the mucosa by means of a Devilbiss spray attached to a motor air-pump. This is a rapid and efficient method, and local swabbing of the mucosa or local injection of the palate or pillars of the fauces is rarely necessary. The use of synthetic anaesthetics such as novutox, etc., is not suitable for the purposes of ultra-violet therapy, as they contain a quinoline base and other chemical compounds, which absorb short ultra-violet rays, and inhibit their biological action on the mucosa. The operator should always wear an efficient mask and a pair of spectacles, so as to be protected from any sudden spasm of coughing, and also from the ultra-violet rays, which might otherwise cause inflammatory reaction of the conjunctiva. The patient should wear a pair of dark-tinted spectacles to protect the eyes against the irritative action of ultra-violet rays ; he should be seated in a comfortable rather low chair, be put at ease, and made to relax as much as possible. The operator should stand facing the patient. The operative procedure should be fully explained beforehand, so as to obtain the help and co-operation of the patient during the treatment. The patient is told to open the mouth and protrude the tongue, and to breathe deeply and slowly through the mouth. The tongue is grasped with the thumb and middle finger of the left hand and firmly supported. The lamp is now directed towards the base of the tongue or to the lesion, and as the grasp of the tongue is relaxed the lamp is finally placed in contact with the lesion, and simultaneously the patient is told to withdraw the tongue. Once the lamp is in its proper position the patient's head is bent forward and downward and the lips are made to enclose the lamp. This procedure should take less than five seconds, and should be carried out so as to avoid any retching, coughing, or straining. The patient is then made to relax as much as possible and to take slow, deep breaths through the mouth, in harmony with the operator, who counts aloud with each inspiration. In this way the dosage is checked and regulated by the operator, though it should also be checked by means of a time clock. If the patient is uncomfortable, and coughs or strains, the lamp should be withdrawn and the whole procedure be started *de novo*. A little education and encouragement soon makes the technique of treatment a comfortable and fairly simple procedure.

Dosage and Effects

The mucous membrane of the buccal and pharyngeal cavities is three to four times as sensitive to ultra-violet rays as the normal white skin. By direct contact of this quartz lamp to the normal white skin an erythema reaction is produced after sixty seconds' exposure. The erythema dose for the normal mucous membrane is ten to fifteen seconds. This dose of ultra-violet rays applied to the mucous membrane of the posterior pharyngeal wall, or to the pillars of the fauces, will cause a visible redness of the mucosa twenty-four to forty-eight hours after irradiation. After treatment the patient will experience a dryness and irritation of the throat, somewhat similar to a sore throat, and swallowing may be painful. The reaction starts after a latent period of twelve hours, and increases to its maximum after forty-eight hours, when it gradually subsides. More intensive reactions occur with increased dosage or abnormal sensitiveness of mucosa. This is seen in a diffuse redness, swelling, and oedema, and the mucosa may gradually become increasingly oedematous. The swelling may spread to the uvula, the pillars of the fauces, and in the larynx, and may even cause oedema of the vocal cords and epiglottis. The reaction reaches a maximum after forty-eight hours, and

makes swallowing painful, with irritation of the throat. This intensive reaction may cause general malaise and pyrexia (100°–101° F.), and in such cases the patient should be put to bed at rest for twenty-four to forty-eight hours, and a menthol carbolic gargle and a light, semi-solid, tepid or cold diet prescribed. The oedema invariably subsides after forty-eight hours, and so far has never needed any other treatment.

This reaction is more common when treating subacute inflammatory conditions of the pharynx or tonsils, or when intensive treatment is applied in tuberculous lesions. Some types of the haemolytic streptococcal infections of the mucosa may give rise to a severe reaction, even with mild irradiation, and may cause redness and oedema of the whole palate, and severe reaction for twenty-four hours. Similar reactions have been observed in cases of Vincent's angina, but often the presence of chronic disease of tonsils and hidden septic crypts may cause this undue reaction. The mucosa of the patient who has a " gouty diathesis," with a markedly acid saliva, is often more sensitive to ultra-violet rays than others, and in such cases treatment must be started with extreme caution, with half or a quarter " mucosa erythema " dosage. It is better to give treatment daily or on alternate days in these types of sensitive cases, and gradually work up to the erythema reaction, for the sudden acute reaction may be alarming and distressing to the patient. When this severe reaction subsides beneficial results may follow. After the erythema reaction the mucous membrane settles to normal within five to seven days, and shows a rapid hardening to ultra-violet rays, inasmuch as the dosage at the second, and subsequent, treatment may be increased to 15–30–60 seconds, and only cause mild inflammatory reactions. In the treatment of chronic tuberculous and other inflammatory conditions of the palate and larynx a full erythema and blistering dose of rays is intentionally applied locally at the site of the lesion, all other areas being shielded from the rays by covering the lamp with metal foil. Following the oedema and erythema of the mucosa round the site of the lesion, a yellow white slough may appear five to six days later, which gradually separates within ten to fourteen days. The exudative reaction is obtained with twice or three times the average erythema dose, but dosage must be carefully controlled and determined by the density and infiltration of scar tissue, and the nature of the ulceration at the site of the lesion. Enlargement and swelling of the cervical lymph glands may follow from intensive local irradiation of the mucosa. This subsides within five to seven days. The painful symptoms following the application of ultra-violet rays may be relieved by the local application of infra-red and luminous rays to the skin area of the neck at the site of pain.

The subsequent dosage is increased according to the technique of treatment which is to be adopted. The first treatment is applied so as to test the sensitiveness of the mucosa to ultra-violet rays, and the dosage is accordingly controlled by these observations. Intensive local treatment is applied once every seven to fourteen days, varying with the duration and severity of the reactions following irradiation. When intensive treatment is applied the patient must be warned, and adequate arrangements for rest in bed, careful nursing, and diet may be necessary. Intensive local treatment should not be applied unless the general resistance of the patient is fairly good, as constitutional reactions may follow. In such cases I usually advise general ultra-violet irradiation of the body two or three times a week for two weeks prior to the application of the local irradiation treatment to the throat. In the cases which have been under my care I have only experienced severe constitutional reactions after treatment of subacute tuberculous disease of the larynx, associated with miliary dissemination of active tuberculous disease of the lungs, and I am now of the opinion that such cases are unsuitable for local irradiation therapy.

THERAPEUTIC ACTION ON MUCOUS MEMBRANE

The reaction of the tissues following the absorption of ultra-violet rays may cause gradual healing of a diseased lesion, owing to the local changes in the capillary blood vessels. A prolonged hyperaemia and vaso-dilatation is produced for five to seven days following irradiation; this is associated with stimulation and emigration of leucocytes, and exudation of lymph and fibrin. It is now well established that the direct bactericidal action of ultra-violet rays destroys surface bacteria and living filter-passing viruses, and although the penetration of the bactericidal rays is small the effects may be sufficient, and the absorption of such irradiated bacteria may increase the local resistance of the tissues, and may also increase general and specific immunity. The absorption of photo-biochemical substances produced by the irradiation of living cells may also add to the increase of the immunity force of the body. In the treatment of disease of the larynx no effort has been made to concentrate ultra-violet rays directly to the lesion, but the rays emitted by the " throat lamp " have been applied to the opening of the larynx as a whole. The reaction which followed has involved, and spread beyond, the irradiated area, and at times has produced the greatest inflammatory changes at the site of the lesion. Healing has continued progressively. It is difficult to decide if the inflammatory reaction produced at the site of the lesion is in itself sufficient to cause this healing, or if the immunity mechanism of the body has been activated locally at the site of irradiation, or if the absorption of irradiated bacteria and irradiated tissue cells by a new vascular field has caused local increase of resistance and stimulation of the immune forces of the body.

OBSERVATIONS ON SELECTED GROUPS OF CASES

Chronic Tuberculous Disease of the Palate and Tongue.—This responded very well to treatment. In all, three cases were treated. In each there was an old history of tuberculous disease of the lungs, but this was well healed and fibrosed before the patients came for treatment. Intensive local treatment was applied to the lesion once every fourteen days, and in one case it was also possible to administer general ultra-violet irradiation twice a week. The dosage of local treatment started with fifteen seconds, and was increased during subsequent treatments to two minutes. Each local application of ultra-violet rays was made by direct contact of the lamp to the site of the lesion. Erythema and oedema followed twenty-four hours later, and spread to the surrounding margins of the ulcer, causing pain and soreness of the tongue and palate. Healing occurred after five or six treatments, giving a smooth, pale scar with little contraction of the mucous membrane. Two of the patients have now been healed for over five years. The third had had previous *x*-ray treatment, and the tuberculous ulcer of the tongue was indurated with hard scar tissue; this increased the resistance of the tissue to ultra-violet rays and delayed healing, and the dosage of ultra-violet rays had to be increased to ten minutes.

Chronic Tuberculous Disease of the Larynx.—Eight cases have been treated, six with successful results—restoration of voice and healing of ulcerated areas. Two patients died, but in these there was intensive involvement of both lungs, and treatment was only applied in an attempt to relieve dysphagia and painful symptoms. In these two cases there was evidence to show that the

local application of ultra-violet rays to the larynx had a sedative and analgesic effect which was of comfort to the patient, for although the reaction following treatment caused erythema and oedema, the oedema appeared to alleviate the painful symptoms for a time, and local anaesthetic spraying and gargles were unnecessary for a short time following treatment.

The mucous membrane of the palate, pharynx, and surrounding areas was anaesthetized, and the lamp was inserted beyond the base of the tongue, so that rays of light were directed to the opening of the larynx. The upper surface of the lamp was covered with lead foil so as to protect the uvula and soft palate from direct radiation. The first treatment was applied for ten to twelve seconds; the patients were made to breathe deeply and slowly while the lamp was applied to the opening of the larynx. Reaction of the mucous membrane to ultra-violet irradiation was seen twenty-four to forty-eight hours later, and this caused redness and swelling of the post-pharyngeal wall. Oedema extended to the soft palate and uvula, although these areas were shaded from direct radiation. Laryngoscopic examination showed redness and swelling involving the epiglottis, vocal cords, and arytenoid cartilages. The patients complained of soreness of throat, dryness, and pain on swallowing. Earache occurred when the irradiation reaction spread to the posterior pillars of the fauces. Symptoms subsided three to four days following irradiation, and were relieved by gargles, spraying of the throat, local application of infra-red and luminous rays, and rest in bed for twenty-four to forty-eight hours. In each of these cases under treatment there was evidence of ulceration, swelling, and oedema, and inflammatory granulation tissue of one of the vocal cords, epiglottis, or arytenoid cartilages. Healing occurred progressively, with restoration of voice, loss of symptoms, and improved general health.

The cases recorded are not sufficient for statistical classification, but the encouraging and successful results should stimulate further clinical research and investigation on larger groups of selected cases.

Subacute Glossitis and Ulcers of the Tongue.—These lesions are due to chronic inflammatory streptococcal infections, and responded favourably after three to four local applications of ultra-violet rays, but the tendency to recurrence was not arrested. The lesions were a secondary manifestation of some other primary focus of infection. The local treatment checked the pain and caused healing within three to four days, but all the cases I treated had recurrences of ulceration of the tongue and mucosa in other sites several months later. Four cases were treated.

Chronic Leucoplakia.—Although only two cases were treated these have responded well to intensive local application of ultra-violet rays, and have been successfully healed. Both were of undiscovered aetiology. Greater trial should be made of this method of treatment in conditions of leucoplakia, for it should prove of help if carried out in conjunction with specific medicinal treatment in cases of syphilitic origin. Considerable caution is needed if there is suspicion of early malignant disease, for in such cases ultra-violet radiation is strongly contra-indicated, as there is danger that the malignant tissue growth may be accelerated by ultra-violet rays.

Chronic Catarrhal Pharyngitis.—Forty-three cases were treated. Successful results have been obtained in obstinate chronic pharyngitis and nasopharyngeal catarrh which have resisted other therapeutic measures—that is, local sprays, medication, vaccines, cauterization, etc. Suberythema or mild erythema doses of ultra-violet rays were applied once every week to the pharynx, the nasopharynx, or the tonsillar fossae. Usually three or four local treatments were sufficient to alleviate symptoms of catarrh, cough, or hoarseness of voice. Clinically, definite healing of the mucosa was seen, and areas of chronic oedematous inflammatory tissue of the post-pharyngeal wall and red eczematous patches of the mucosa of the anterior pillars of the fauces improved, showing a pink and greyish-white smooth area. Thickening of scar tissue or contraction of the underlying tissues was rarely observed.

Observations on the bacteriology of the mucous membrane before and after radiation therapy were disappointing. Before irradiation the cultures taken from the nasopharyngeal, pharyngeal, or tonsillar swabs showed the presence of *Streptococcus haemolyticus* and *Streptococcus viridans, Micrococcus catarrhalis*, and Pfeiffer's and Friedländer's bacillus. After irradiation the bacteriological cultures grew the same types of organisms. It was observed, however, in some cases, that during the erythema stages—that is, twenty-four to forty-eight hours after local irradiation—throat and post-nasal swabs often grew a pure culture of a haemolytic long-chain streptococcus, whereas cultures before irradiation grew a non-haemolytic short-chain type of *Streptococcus viridans*. These changes in the bacterial flora are difficult to explain, but the original bacterial flora were seen seven days later.

Caution is necessary in the dosage of local irradiation in cases of Vincent's angina, and also during the treatment of the "gouty mucous membrane"; for severe reaction causing a spreading oedema of the soft palate and uvula may follow, even with mild sub-erythema dosage. The local irradiation of the pharyngeal and tonsillar mucous membranes may be of great value in the treatment of chronic catarrh following colds, and of chronic infections with streptococci, Vincent's angina, and diphtheria carriers, etc. Cases of chronic septic and catarrhal pharyngitis showing clinical signs of redness or oedema of the mucosa, and symptoms of persistent nasopharyngeal catarrh, hoarseness of voice, and troublesome cough, have responded well to radiation therapy after other methods have failed. The results of treatment of many of these cases of chronic pharyngitis are similar to the successful results often obtained following the local irradiation of a patch of chronic idiopathic eczema of the skin or of the external auditory meatus. The treatment of such lesions with full erythema doses of ultra-violet rays will often completely heal a lesion of many years' duration in two to three weeks.

CONCLUSION

The cases which I have treated are relatively few, but I hope that observation and the results of the treatment will encourage further clinical research at hospitals and other clinics, where greater access to suitable cases is available.

The treatment of the mucous membrane by local radiation therapy must be confined to the specialist. The manipulation of the apparatus needs careful and specialized knowledge, and the application and supervision of treatment can only be carried out by fully qualified physicians.

I am greatly indebted to Mr. Douglas Harmer for his help and kindness. During the past two or three years he has contributed some suitable cases for treatment, and checked my observations and results. As he says:

"In the few cases observed the results obtained by this treatment have been surprisingly good. Even a short application of the light for a few seconds only may produce a sharp local reaction, but when applied cautiously the inflammation is never serious or prolonged, and in many instances is followed by rapid improvement. Thus in three cases of chronic laryngeal tubercle the lesions healed much more quickly than I should have expected without light treatment. Several very obstinate cases of pharyngitis have also improved enormously. But the method is comparatively new, and therefore requires careful investigation before one can decide which types of inflammation are best treated by it."

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ACUTE SCARLATINIFORM DERMATITIS FOLLOWING INJECTION OF TOXOID-ANTITOXIN

BY

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As I am not aware of any report of a similar reaction following the use of toxoid-antitoxin in diphtheria prophylaxis, the following record of a troublesome allergic dermatitis may be of interest to those engaged in active immunization against diphtheria.

A healthy girl, aged 16, whose work brought her constantly into contact with diphtheritic infection, wished to be immunized. She was Schick-tested on July 14th, 1932, and gave a positive and pseudo reaction. On July 21st a 1 c.cm. dose of toxoid-antitoxin was injected into the region of the deltoid insertion, and next day a reaction about 1½ inches in diameter resulted at the site of inoculation, and she had a feeling of lassitude and malaise. On July 24th a slight itching erythema (somewhat like "prickly heat") appeared on the neck and chest, but its connexion with the injection was not realized. On July 28th a second injection of 1 c.cm. T.A.M. was given, a well-marked local reaction again occurring at the site of inoculation. Two days later the skin erythema flared up in an acute dermatitis, spreading from the neck and chest to the back, the abdomen, then to the arms, legs, and head, until the whole body was involved, with the exception of the hands and feet.

The eruption was bright red in colour, the skin hot, dry, and rather itchy, though not markedly so. Peeling in moderately large flakes began about August 2nd (nine days after the onset), the skin feeling dried up and rendering movement uncomfortable, and in fact painful.

On August 9th, as the condition showed no sign of improvement, and there was marked inflammation of the skin with coarse, flaky desquamation, I sent the patient to see a dermatologist, who regarded the condition as a "sensitization" eruption, arising as an erythema scarlatiniforme.

After about a week's treatment the acute stage of the skin eruption settled down, but the coarse desquamation continued for another week. In view of the disturbance following the injections I decided it would be extremely risky to complete the immunization course by giving the third 1 c.cm. dose of T.A.M. On October 4th I again Schick-tested the patient, the result being pseudo and doubtful positive. Having given several thousand injections of toxoid-antitoxin without any more notable sequelae than in a few cases a localized reaction, and rarely a slight transient constitutional disturbance, I was interested to confirm as far as possible my opinion that the dermatitis was the direct result of the toxoid-antitoxin, and was not purely fortuitous. It was clear that the only positive way by which to confirm the T.A.M. as the exciting cause was to repeat the 1 c.cm. doses, and obviously this course was out of the question. Early in December I again Schick-tested, and, obtaining a pseudo and negative result, I decided to observe carefully the effect of a small dose of T.A.M.; 0.1 c.cm. was given subcutaneously on December 6th, and that evening the temperature rose to 101.1° F., and on the following day the site of the injection was very tender, the surrounding skin red and indurated, and there was general malaise. On December 8th the area was still well defined, about 1½ inches in diameter, the arm being stiff and tender on movement. The morning and evening temperatures were just under 100°. The temperature readings on December 9th were 99.4° (a.m.) and 100° (p.m.), and the reaction was subsiding. On December 10th the temperature remained normal, the patient felt well, and the site of injection was no longer tender or inflamed. In view of the apparent marked intolerance of the patient to the toxoid-antitoxin mixture, I decided to try the effect of a skin test, using a dilution of 1 in 100 of T.A.M. A 0.2 c.cm. intradermal injection was given in the forearm. In twenty-four hours there was a well-defined inflammatory area about 20 mm. in diameter. This persisted for about forty-eight hours, and was somewhat indurated and tender. As I had previously had injections of T.A.M., and was also a pseudo and negative reactor, I injected a similar dose of the dilute T.A.M. intradermally in my forearm as a control, and in twenty-four hours there was a faint flush, without induration or tenderness, which faded by the following day. The result of this test added further confirmation that the patient was very sensitive to even small doses of toxoid-antitoxin. A 0.2 c.cm. intradermal injection of a 1 in 100 dilution of toxoid (M.T.) gave rise in the patient, and in myself as control, to a faint 10 mm. flush, which disappeared within twenty-four hours.

After consultation with Dr. R. A. O'Brien, I carried out skin tests with dilutions of the constituents of the toxoid-antitoxin mixture in an endeavour to ascertain which of the constituents was responsible for the peculiar allergic reaction. On February 28th I made three intradermal tests, using 0.2 c.cm. of a 1 in 100 dilution of the antitoxin serum, 0.2 c.cm. of a 1 in 100 dilution of peptone, and 0.2 c.cm. of a 1 in 100 dilution of veal infusion. That evening there was a well-marked and painful reaction, 5 cm. by 3 cm., at the site of the injection of antitoxin. The following day this area was tender, with a definite palpable raised margin, similar to an urticarial wheal. By March 3rd this reaction was practically gone. There was no reaction to the injections of peptone and veal infusion. Three similar injections in my own case as a control gave rise to no local reaction whatsoever.

REMARKS

There are three methods of explaining the disturbance which commenced toward the end of July: (*a*) that it had no relation to the injection on July 21st or 28th; (*b*) that the patient showed the uncommon type of very acute sensitivity to serum; (*c*) that she was acutely sensitive to the products of metabolism of diphtheria bacillus, which are found in toxoid, and which, in very rare highly sensitive people, may cause unusually troublesome local or general reactions.

The only argument in favour of (*a*) is the extreme rarity of a dermatitis of the kind after the use of the English toxoid-antitoxin mixture or the American toxin-antitoxin mixture. Since the patient in December reacted acutely to 0.1 c.cm. injected subcutaneously, and in February showed an unusual reaction after 0.002 c.cm. of T.A.M. intradermally, it is probable that the dermatitis was due to the injection of T.A.M. In order to find out with certainty which constituent was responsible it would have been necessary to inject subcutaneously, on separate occasions, into the patient, the constituents of the T.A.M., and see whether the fraction of serum, of toxoid, of peptone, or of veal infusion would produce another attack of dermatitis. Although the patient was very helpful, it appeared quite unjustifiable to do an experiment on this scale, and the most that could be done was to carry out the intradermal tests with serum, peptone, and veal infusion in February. All that we can be sure of is that the patient was, at this date, unusually sensitive to serum, and we must rest satisfied with the possible explanation that the minute amount of serum in the original injection of 1 c.cm. of T.A.M. had caused the dermatitis. There was no trace of asthma or any other "allergy" in the previous history of the patient or of her family.

SUMMARY

A troublesome exfoliating dermatitis occurred in a girl of 16, following the injection of two doses of 1 c.cm. of T.A.M. given within a period of seven days. The dermatitis was possibly due to an acute sensitivity to serum.

I am indebted to the patient for her willing co-operation in submitting to the tests, to Dr. S. Watson Smith of Bournemouth for his clinical report on the skin condition, and to Dr. R. A. O'Brien for supplying the test constituents of the T.A.M. and for his valuable critical suggestions.

TREATMENT OF RINGWORM OF THE SCALP WITH THALLIUM ACETATE

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The economic situation created by the great war was probably responsible for the rapid development of an easier method of treating ringworm of the scalp in children than the older and more tedious one of *x*-ray therapy.

Since the post-war literature dealing with thallium acetate is so extensive it is unnecessary to give an elaborate account of its history. Soon after its discovery by Crookes[1] in 1861 it was isolated in 1862 in a pure form by Lamy,[2] who recorded its toxic properties. Thallium acetate became fashionable in the field of therapeutics, and was used to control the night sweats of the consumptive, and Combemale[3] (1898) observed that his patients undergoing this treatment lost their scalp hair. In 1898 Sabouraud[4] used thallium acetate for the first time as a depilatory agent in ringworm of the scalp. He used it both locally and internally, and later abandoned it on account of its toxic properties. In 1909 Cicero[5] revived the subject of thallium therapy, and in 1918 published favourable reports on the uses of thallium acetate as a depilatory in ringworm. In the early days of the great war Buschke[6] approached the subject, and has since published periodical reports on the results of his experiments with thallium in rats. In 1922 Buschke and his collaborators administered the drug in the treatment of tinea capitis in children, giving it by the mouth, in a sweetened solution, on an empty stomach. For successful epilation he found it necessary to use a minimum dose of 8 mg. of thallium acetate per kilo of body weight (nude), and further stressed the importance of local treatment during the process of epilation.

In this country Percival[7 8] has used the drug extensively, and in 1930 published a detailed account of his results of thallium medication in fifty cases of ringworm of the scalp. He maintains that, apart from occasional manifestations of mild toxic symptoms, the patient appears perfectly normal. Recently Ingram[9] has reviewed very lucidly the literature on the subject, particularly in reference to deaths from thallium poisoning, and has come to the conclusion that all the reported deaths have resulted from faulty technique in the administration of the drug. He believes that those who condemn its use as a depilatory agent in ringworm of the scalp do so from a limited acquaintance, and is convinced that, with care, the more the drug is used the less apparent will be the danger. The three deaths recorded by Lynch and Scovell[10] cannot be accepted as a valid objection to its use, for they were, unfortunately, due to an error on the part of the dispenser. Apparently these deaths have created a deep impression on medical opinion in this country, and the drug has gained an evil reputation. The compilers of the new *British Pharmacopoeia* have ignored it entirely. We are still ignorant of its precise mode of action, and until our knowledge has increased we cannot lay down a hard-and-fast rule for its administration. Recently Vasarhelyi[11] and Buschke have published their investigations on the changes in the skin produced by thallium. They conclude that a local application of it can cause alopecia, and also slight inflammatory changes, and that the drug absorbed from the skin causes general thallium phenomena. Thanks to the patient work of Cicero and Buschke, the experimental stage has been successfully passed, and it is evident that thallium acetate is being used more and more in the treatment of tinea capitis in children. Our knowledge of its elimination and rate of absorption is only partial, and although we have certain facts to guide us in its administration, our ignorance of its pharmacological action still awaits daylight.

Sabouraud regarded such toxic manifestations as tachycardia, cutaneous erythemata, and subcutaneous haemorrhages to be the result of impurities in the preparation he used. Other early observers maintained that the lead contained in thallium was responsible for the toxic properties of the drug. Its toxic manifestations undoubtedly simulate those of lead to a marked degree. Like lead, it is a protoplasmic poison, and a comparison of the symptomatology is interesting. Both have a predilection for nervous tissue and are cumulative in action. The cramp-like abdominal pains, peripheral neuritis, and blurred vision of lead poisoning are frequently observed in thallium poisoning. The blue line so characteristic of lead absorption has also been observed in thallium poisoning. Adler[12] refers to the changes in the finger-nails observed as a late symptom of it. About the eighth week after administration he noticed in one of his cases a white horizontal band on each finger-nail and equally distant from the base of the nail. He mentions that this band could easily be distinguished from the white zones which are often observed in some other diseases. His observation is of interest in comparing the two elements, for one of us (D. R. L.) has observed similar bands to those described by Adler on the finger-nails in a case of lead poisoning. A few of the early writers found stippling of the red blood corpuscles in thallium poisoning, but latterly Testoni[13] and other observers have failed to demonstrate stippling in their cases. The analogy between thallium poisoning and lead absorption is interesting, for it is a well-known fact that a moderate amount of lead in the system, although toxic, is not apparently harmful, and does not shorten life.

The fact that thallium is a protoplasmic poison must not be overlooked, and its administration must be carried out with care and vigilance, for it is certainly well known that the difference between the maximum therapeutic dose and the toxic dose is very small. Lynch and Scovell have objected to its use on the grounds that it might do permanent damage to the growing organism, but Percival and Ingram have found no such evidence in their extensive experience of the drug. They believe that the mild toxic manifestations observed after the proper administration of the drug are a passing phase, and of no significance.

RESULTS IN FIFTY CASES

Our report is of fifty cases of small-spored ringworm of the scalp which were treated by the oral administration of thallium acetate. Twenty of the treated children were inmates of an orphanage home in Carmarthenshire, and were under the medical supervision of one of us (W.A.Ll.). The opportunity of daily observation was valuable from the point of view of gaining first-hand information of the toxic manifestations or any other psychical disturbances. One of the children was an epileptic, and another had a spinal curvature. The ages of the children treated ranged from 4 to 12.

A routine medical examination was carried out, and particular attention was paid to the examination of the urine. The child was then weighed nude, and the weight recorded. With two exceptions every child was given by the mouth a single dose of a sweetened solution of 8.5 mg. of thallium acetate per kilo of body weight. We hesitated in giving the usual therapeutic dose in the cases of the kyphotic and the epileptic child. In the former a middle course was adopted, and we gave the child 5 mg. of thallium acetate per kilo of body weight, and a half-pastille dose of *x* rays immediately after the administration of the drug. The Kienbock-Adamson method was used in giving the *x* rays, and a half-pastille dose was given to the different areas instead of the full pastille dose. The epileptic child was given 7.5 mg. of thallium acetate per kilo of body weight. The parent or guardian was then advised to cut the hair short, if not already cut, and ordered to apply a 2 per cent. solution of iodine thrice daily

to the scalp for another four weeks. The patient was advised not to wash the scalp for the first fortnight. At the beginning of the third week the scalp was washed with soap-and-water. This is the method recommended by Ingram, and it proved a very satisfactory one, though not superior to the vigorous local application of a 10 per cent. sulphur ointment recommended by Percival. In three cases we found that even a 2 per cent. solution of iodine proved too irritating to the children, and a 10 per cent. ung. sulphuris application was applied daily for three weeks instead.

The scalp was epilated in every case except two, and in the latter the full therapeutic dose was not prescribed on account of their state of health. One of our failures was an epileptic, and the other had a spinal curvature. In the former, the drug produced no ill effects, and has not increased the frequency of the fits. Falling of the hair was first noticed on the twenty-fifth day, and the scalp was never completely bald.

In the child with a spinal curvature epilation was never complete, and for many weeks after the administration of the drug and *x* rays the bald irregular patches on the scalp presented a curious appearance. On the fifth day following the administration of the drug a scarlatiniform rash was noticed on the child's neck and face. On the eighth day the rash had disappeared, and the child complained of itchiness of the skin and pain under the heels. The child was somewhat lethargic for a few days. A rash was observed in three children.

Toxic symptoms were observed in 43 per cent. of our cases, and, with the exception of one child, were of a mild pseudo-rheumatic character. The commonest symptoms were malaise, lethargy, weakness, and loss of muscular power and pains, particularly in the legs. The lower limbs seemed to be most commonly affected.

One case only in the series gave rise to anxiety. He was a boy of 5, and on the eighth day a diffuse rash was noticed on his legs. On the eleventh day the rash appeared all over his body. The face and neck were swollen, and the legs were oedematous. The temperature was normal, and a trace of albumin was found in the urine. The child remained in bed for a week, and made an uneventful recovery. He weighed 15.9 kilos, and 15.9 c.cm. of a solution containing 8.5 mg. of thallium acetate per c.cm. was administered.

CONCLUSIONS AND SUMMARY

It is claimed that older children are more liable to show toxic manifestations. We found that no particular age period was exempt, and only a few of the children exhibiting toxic manifestations were confined to bed. They all made a complete recovery. All the children, except two, responded well to treatment, and fulfilled the usual tests for a cure. *X* rays and thallium acetate administration are the only two satisfactory methods known for treating ringworm of the scalp. Both have their firm adherents. *X* rays have proved their value, and the expert has produced perfect results. It must be borne in mind, however, that in less experienced hands they cannot be used without danger, and many partially bald heads still linger as a monument to faulty *x*-ray therapy in early infancy. The superiority of thallium acetate treatment over *x* rays is most obvious when an epidemic of ringworm of the scalp has to be combated. In the treatment of the twenty children from the Cottage Homes we were able to stamp out the disease, with the aid of this drug, in eighty-five days. With *x* rays it would have taken us a much longer time, and it would have also entailed much more labour. According to Percival, the average duration of treatment at Edinburgh, from the time of administration of the *x* rays till the cure of the disease, was 135 days. It is impossible in the average skin clinic in the course of an epidemic of ringworm to treat every case immediately by *x* rays, whereas thallium acetate can be given at once to every child as soon as the diagnosis is made. The children at the institution have been carefully watched (by W. A. Ll.) for six months, and nothing unusual has been noticed in their physical or mental development. Although the new method may prove a snare to the unwary and has been severely criticized, our results have been particularly satisfactory. The children are healthy, vigorous, and mentally alert.

To summarize. Thallium acetate is a dangerous drug, and therefore requires careful technique in its administration. Like lead it is a cumulative poison, and must not be repeated for at least four months. Toxic symptoms are rarely severe, and even the severe case encountered in our series recovered without any sequelae. When properly administered it can be used with ease and safety in the treatment of ringworm of the scalp.

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THE POSTERIOR FOSSA COMPRESSION SYNDROME

BY

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Having several times in the course of the past twelve years encountered a syndrome which, although it may occur from high generalized intracranial tension, appears to be particularly characteristic of rapidly increased intracranial pressure in the posterior cranial fossa below the tentorium cerebelli, I venture to draw attention to it in the hope that its more general recognition may lead to its effective treatment. If ineffectively treated the condition is fatal. The first case of which I had experience (when a house-surgeon) was due to a fracture of the base of the skull and ended fatally; others with a similar termination have also been related to me. Since recognizing the syndrome and its cause, I have been privileged to tide a patient through it.

THE SYNDROME

The patient collapses and respiration stops, while the heart continues to beat vigorously. If nothing is done the heart soon ceases to beat, the patient previously becoming more and more cyanosed. A failure of the respiratory centre evidently takes place; the cardiac centre being apparently less vulnerable to the effects of sudden compression, the heart action continues. Artificial respiration results in the diminution of the cyanosis, and patients have been kept alive for ten or twelve hours while artificial respiration has been kept up; but as soon as this has flagged the cyanosis has increased, the heart has slowed, and, when artificial respiration has finally ceased, the patient has died. Such a case was reported to me by Professor Sheen as having been met with in his

experience, and one occurring in my own experience and produced by haemorrhage from a fracture of the base of the skull running through the posterior fossa has already been mentioned.

The cause of the syndrome would appear to be the relative vulnerability to pressure of the respiratory as compared with the cardio-inhibitory centre. The compression may be produced by haemorrhage into the posterior fossa or by an intracranial tumour or abscess, and in the latter instances may result from oedema in association with the lesion. This was apparently the mechanism in the case which follows. Recognition of the syndrome enabled one to relieve the condition and subsequently deal with its cause, a cerebellar cystic glioma.

HISTORY OF CASE

The patient, a single woman aged 30, was transferred to the surgical unit from another hospital with a diagnosis of cerebellar tumour. The signs and symptoms were typical of such a lesion, and there was a high degree of bilateral papilloedema. A ventricular estimation had been carried out, and she was in one of the unit wards awaiting operation when one morning I had an urgent message from the house-surgeon (Mr. J. F. Meredith), asking me if I would come and see her as she had suddenly collapsed. On reaching the ward I found him carrying out artificial respiration. The patient was unconscious, and as soon as the efforts at artificial respiration were relaxed she would become cyanosed, the pulse would slow and eventually stop, and she would be to all appearances dead ; but with renewed artificial respiration the pulse would come back, the cyanosis pass off, and her colour improve.

With a knowledge of the outlook—namely, indefinitely prolonged artificial respiration and then death when exhaustion of the workers led to cessation of artificial respiration—it was realized that radical action was imperative. An oxygen cylinder and a gum-elastic catheter were sent for. By manipulation the catheter was placed through the glottis ; on connecting it to the oxygen supply the colour of the patient was kept pink and the pulse remained good. She was taken at once to a theatre, and without any anaesthetic and with the assistance of my colleague Mr. R. V. Cooke and of Mr. Meredith a suboccipital decompression consisting of the removal of the greater part of the post-occipital bone back to the foramen magnum so as to remove its posterior margin, and a laminectomy of the atlas, were carried out. When the dura mater was opened the cerebellar tonsils bulged into the wound, and the medullary compression was evidently relieved. At this stage respiratory movements commenced ; shortly afterwards the oxygen supply was turned off, and it was found that the catheter could be withdrawn from the trachea. The wound was closed and the patient returned to bed. She regained consciousness and recovered from her alarming experience with no untoward effects except for a small cerebro-spinal fluid fistula, which, however, soon closed. The decompression relieved her symptoms to a great extent, and she was discharged to her home and was comparatively well for eight months. She was then readmitted and the cyst removed from the cerebellum, but unfortunately she contracted bronchopneumonia, from which sixteen days after operation she died. The interest in the case here, however, lies in the appearance of the posterior fossa compression syndrome and its treatment by emergency posterior fossa decompression.

COMMENT

By prompt radical treatment it may be possible to tide the sufferer from its effects through an otherwise fatal syndrome, and it would appear that, when in a case of raised intracranial tension—whether from haemorrhage, new growth, or abscess—respiratory failure occurs, prolonged efforts at artificial respiration should not be carried out, but with all possible dispatch relief of medullary compression should be secured by an emergency posterior fossa decompression. Oxygen administered through an intratracheal catheter, as in this case, may enable the operation to be undertaken ; but, failing introduction of a catheter in this way, an emergency tracheotomy or laryngotomy would appear to be advisable and the oxygen should be supplied by this route. It might be objected that, rather than the performance of such a radical procedure, a reduction of intracranial tension with relief of medullary compression might be brought about by ventricular tap or by intravenously administered hypertonic salt solution or glucose ; but such means would appear less certain, and in any case would produce only transitory effects. In the posterior fossa compression syndrome, therefore, the indication would appear to be an extensive mechanical relief of pressure, as in the case to which reference has been made.

A CASE OF MALARIA DUE TO PLASMODIUM OVALE STEPHENS 1922

BY

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Stephens (1922) reported a new malaria parasite in a man coming from East Africa, and named it *Plasmodium ovale* on the basis of its morphological features in the asexual stage, pointing out that it resembled rather closely the quartan parasite, but that infected corpuscles were frequently oval in shape and showed Schüffner's dots. Later, Stephens and Owen (1927) described another instance of infection with *P. ovale* in a case from Nigeria ; male and female gametocytes were on this occasion described which were indistinguishable from those of quartan except for the stippled, decolorized margin of the red cell ; they concluded that the relationship, if any, of *P. ovale* to *P. malariae* remained to be demonstrated.

Warrington Yorke and Owen (1930) met with an infection with *P. ovale* in a hospital patient from Nigeria, and by means of direct blood inoculation passed it through a series of five general paralytics or tabetics. The parasites were morphologically indistinguishable from *P. malariae*, but the cycle of schizogony was completed in forty-eight hours, and the temperature charts were tertian in type. The infected red cells were moderately enlarged, and occasionally enormously so ; they were pale, fragile, frequently oval in shape, having usually an irregular, raggy outline, and being heavily stippled, as described by Stephens.

James, Nicol, and Shute (1932) obtained blood containing *P. ovale* from a case of Professor Warrington Yorke's, passaged it through fourteen general paralytics, and studied the sexual form in the mosquito ; the arrangement of pigment in young oocysts was found distinctive. The disease was also transmitted by the bite of experimentally infected mosquitos, *Anopheles maculipennis*, as well as by sporozoites obtained from the salivary glands and injected intravenously. Later the same authors (1933) reviewed the whole subject, and concluded that the nomenclature of *P. ovale* was correct.

Since 1922 only four naturally infected cases appear to have been diagnosed in this country, and for this reason the following case, which presents several features of interest, seems worth recording.

CASE RECORD

The patient, a male aged 28 years, was sent by his firm on August 8th, 1932, for examination regarding his suitability for the Tropics, and following a favourable report proceeded to West Africa, arriving at Lagos on September 19th, 1932, and leaving Freetown on February 9th, 1933, for England. During this period of 143 days he visited Nigeria, the Gold Coast, Gambia, and Sierra Leone in this order, and was quite well except at the end of October in Lagos, when he was severely bitten by sand-flies, and suffered from an attack of

fever lasting two days. Throughout the tour he used mosquito boots, a mosquito net at night, and took quinine (five grains daily) as a prophylactic measure. At no time was he conscious of being bitten by mosquitos.

The patient arrived in England on February 20th, 1933, and was quite fit until March 22nd, when at about 7.30 p.m. he developed a rigor lasting half an hour; this he attributed to a chill. The second attack came three days later—that is, March 25th—when a rigor occurred at 7.20 p.m. and lasted one and a half hours. The third attack occurred on March 27th, about 6.30 p.m., and by 8 p.m. the temperature had risen to 103.8° F.; on this occasion the rigor lasted two hours, and the patient sweated freely after taking hot drinks. The fourth attack, on March 29th, came on at 6.30 p.m., with a rigor lasting three-quarters of an hour; by 7 p.m. the temperature was 101°, and again profuse sweating occurred. On each occasion the patient said the rigors were of a mild character, and that the shivering could to some extent be voluntarily controlled.

On March 30th the patient was referred to me by Dr. R. H. Dixon with suspected malaria. Examination then revealed a palpable spleen, a temperature of 98.8°, a yellow skin, and a dark-brown urine, which showed urobilin (+) and a trace of bile salts and albumin. The leucocyte count was 7,200 per c.mm.; the differential count showed neutrophils 58 per cent., lymphocytes 30 per cent., monocytes 11 per cent., eosinophils 1 per cent. In blood films prepared with Leishman's stain the laboratory reported that malarial parasites, atypical in type and resembling quartan malaria, were present. Owing to the fact that the temperature, though originally quartan, now showed a tertian type of periodicity, infection with *P. ovale* was suspected on clinical grounds, and this was confirmed by Dr. C. M. Wenyon, who re-examined the blood films. Dr. Wenyon reported that the morphological appearances of the parasite were typical of *P. ovale*, that the characteristic distortion of the red cells was present, and that the infected corpuscles were heavily stippled with Schüffner's dots in films stained overnight with Giemsa, though they were not evident in Leishman-stained films.

Next day (March 31st) the patient was admitted to the Hospital for Tropical Diseases. The temperature reached 99.4° at 6 p.m., and blood films again revealed *P. ovale*. The red blood cells were 4,720,000 per c.mm.; haemoglobin 90 per cent.; colour index 0.96; diameter 7.2 μ. The urine showed bile salts (+), urobilin (+), and a trace of bile pigment, while the van den Bergh reaction gave a negative direct but a strongly positive indirect reaction of 2.5 units. Oxalated plasma collected under paraffin showed no trace of oxyhaemoglobin bands when examined spectroscopically through a thickness of 1.3 cm. The plasma urea was 38 mg. per cent., and the plasma cholesterol 109 mg. per cent. Treatment was commenced with atebrin, 0.1 gram being given per os. Next day (April 1st) there was malaise, the temperature reached 100°, but there was no rigor. Atebrin was continued, 0.1 gram three times daily, and quinine bihydrochloride, 7½ grains in 10 c.cm. of saline, was injected intravenously.

The subsequent clinical course was afebrile and uneventful, and parasites permanently disappeared from the blood. Intravenous injections of quinine (7½ grains) were continued daily until April 4th, and atebrin (0.1 gram three times daily) until April 5th. The urine had by then lost its dark-brown appearance, and though bile salts persisted only a trace of urobilin was detected; the van den Bergh reaction was also found to be normal—indirect reaction 0.2 unit. The reticulocytes equalled 3.6 per cent., and from this date until April 8th the daily reticulocyte counts were 5.7, 6.3, and 3.4 per cent. respectively. On April 10th the reticulocytes had fallen to 2.5 per cent.; red blood cells, 5,120,000 per c.mm.; haemoglobin, 102 per cent.; colour index, 1.0; average corpuscular diameter, 7.2 μ; leucocytes, 8,300 per c.mm.; the differential count was normal, the monocytes having fallen from 11 to 3 per cent. By April 11th the reticulocytes had reached a normal level—that is, 1 per cent.; the urine was also normal, the spleen was no longer palpable, and the patient was discharged from hospital.

When seen again, on April 22nd, clinical examination revealed no abnormality, the blood showed no evidence of parasites, the van den Bergh reaction was normal, and the urine contained neither urobilin nor bile salts.

COMMENTARY

This case is an instance of infection with the fourth species of malaria parasite—that is, *P. ovale* Stephens 1922—contracted during a short tour of 143 days in West Africa. Throughout this period the patient had consistently taken prophylactic quinine, and this is the probable reason for the long incubation period, unless the two days' fever in Lagos be interpreted as representing the primary malarial attack.

The species of parasite was suspected on clinical grounds when the laboratory reported atypical quartan malaria in a febrile patient who, though at onset manifesting quartan, later showed a tertian periodicity. Another peculiar feature was the late time of onset of the rigors, which occurred between 6.30 and 7.30 p.m.; generally malaria fever commences before or about midday, as emphasized by Manson.

The biochemical and haematological observations were of interest. Haemoglobinaemia was not evident at the time the plasma was examined, but the urobilinuria and hyperbilirubinaemia indicated that the blood destruction usually associated with malarial fever was going on. Bile pigments in the urine are unusual in malarial fever, and probably originated from a mild toxic hepatitis in this instance. The reticulocytosis reached a maximum of 6.3 per cent. some eight days after the initiation of specific treatment. This is usual in malaria, for once the parasites are controlled or destroyed regenerative activity of the bone marrow results in reticulocytosis and new blood formation.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

RECURRENT RENAL CALCULI

NEPHROLITHOTOMY TWICE ON EACH KIDNEY IN THE SAME PATIENT

Mrs. X, then aged 37 years, was sent to me in February, 1911, by the late Dr. Sortain Hancock, with definite signs and symptoms of stone in her *right* kidney. Radiographic examination proved the presence of a large branched calculus occupying the pelvis and some of the calyces of that organ.

I performed nephrolithotomy on February 15th, and removed, as I thought whole, a large stone with four "legs." The wound was drained for the first forty-eight hours, and then healed rapidly, and she was discharged on February 25th, ten days after the operation. There was no evidence then of any calculus in her left kidney.

She was readmitted on April 25th, 1914, now with definite evidence of a stone again in her *right* kidney, and one also in her *left* kidney. On May 1st, 1914, I explored her *left* kidney, the one which had not previously been exposed, and removed a stone. The wound healed rapidly. On May 19th, 1914, I explored her *right* kidney, the one from which I had removed the large stone in 1911, and found and removed a small stone from the pelvis. This may have formed upon some debris which I had failed to extract at the first operation.

Two years later, in March, 1916, she again showed herself with evidence of stone, once more in her *left* kidney. By this time she had become an "expert" in the diagnosis of renal calculi, and she ventured to bring her brother, in whom she was sure there was a stone in his *left* kidney! And so it turned out to be. I admitted them both to the hospital on the same day, I operated on

the *left* kidney of each on the same day, the sutures were removed from each on the same day, they got up in the ward on the same day, and together they left the hospital with soundly healed wounds on the same day, eighteen days after the removal of their calculi.

Thus it will be seen that the woman is probably a unique person, having had both of her kidneys dealt with twice over. I may add that she has never had a further recurrence, and is alive and active to-day at the age of 60 years.

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ENCEPHALITIS FOLLOWING VACCINATION: WITH RECOVERY

The number of cases of post-vaccinal encephalitis recorded in this country is small. For this reason, and in view of the striking recovery, the following case appears worthy of record.

A well-developed girl of 17 was admitted under my care at the Royal Devon and Exeter Hospital on April 25th, in a stuporous condition. Fifteen days previously, while in her usual state of sound health, she had been vaccinated with Government lymph by a single insertion on the outer side of the thigh. She had never before been vaccinated. The vaccination took well, and was followed by a mild febrile reaction at the end of a week, necessitating three days in bed. On the morning of the fourteenth day she felt unwell, but did her work. That evening Dr. H. Temkin was sent for; he found her cheerful and presenting no signs other than a temperature of 103° F. and general aching. She was "noisy" that night, and was found to be stuporous when seen the next afternoon by Dr. Temkin, who sent her forthwith into hospital.

On admission she was semi-comatose, screaming, resistive, photophobic, and made no response to simple requests. Temperature was 99.6°, and pulse 68. The pupils were small, but were reacting to light; the optic fundi were normal. No cranial nerve paresis was detected; but the neck was stiff. Abdominal reflexes were absent. Biceps, triceps, and knee-jerks were very sluggish, and the ankle-jerk was obtainable only on the left side; plantar reflexes flexor. Kernig's sign was not present. Catheterization of the bladder was necessary, and an enema was retained. No feeding by the mouth was possible, except by a tube. Heart, lungs, and urine were normal. Lumbar puncture was performed that evening and again next morning (when coma had become complete), with no relief of symptoms. The cerebro-spinal fluid was under pressure, turbid, and of greenish colour, and was reported on by Dr. W. A. Robb as follows: red blood cells, 753 per c.mm.; leucocytes, 118 per c.mm., of which 82 per cent. were lymphocytes and 18 per cent. polymorphonuclears; protein, 90 mg. per 100 c.cm.; globulin (Nonne-Apelt reaction) positive; glucose, 50 mg. per 100 c.cm.; chlorides, 670 mg. per 100 c.cm.; no organisms seen by Gram film; no tubercle bacilli found; culture sterile.

At 5.30 p.m. that day (April 26th) a third lumbar puncture was performed, when, after escape of fluid, 30 c.cm. of blood serum from a nurse successfully vaccinated three and a half months previously was slowly injected into the theca. One and a half hours later I observed the patient begin to talk semi-incoherently, but for the first time since admission. By the next morning she was rational, though excited and dazed; but another similar injection of the serum was made into the theca. Temperature was normal and remained so. On the fifth day after admission (April 30th) she appeared to have recovered completely, except for control of the bladder, which she did not regain until May 2nd. On that date the tendon jerks were all normal; the abdominal reflexes, however, still remained absent at the beginning of June. Well-marked desquamation commenced at the end of the second week in hospital. On May 8th a second examination of the cerebro-spinal fluid by Dr. Robb showed: 14 leucocytes per c.mm., all lymphocytes; 4 red blood cells per c.mm.; protein 35 mg. per 100 c.cm.; globulin test negative; glucose, 70 mg. per 100 c.cm.; chlorides, 705 mg. per 100 c.cm.

Among the points of special interest in this case are: (1) the incidence in adolescence and in a person previously unvaccinated, as in the vast majority of cases reported in the literature; (2) the vaccination was by the single insertion now recommended; (3) the mild lymphocytic reaction as typically found in human encephalitis following vaccination,[1] and as also mentioned by Mackintosh and Scarff[2] and others in experimental researches; (4) the dramatic recovery immediately following intrathecal introduction of an immune serum; it appears that a smaller and single dose of the serum used would have fulfilled the needs of this case, as in that described by Lord Horder,[3] where a single introduction of 5 c.cm. was successful.

I wish to acknowledge my great indebtedness to Dr. W. A. Robb for his examinations of the cerebro-spinal fluid and preparation of the serum.

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[1] Lapage: *British Medical Journal*, 1933, i, 811.
[2] Mackintosh and Scarff: *Journ. Path. and Bact.*, 1930, xxxiii, 483.
[3] Horder: *Lancet*, 1929, i, 1301.

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SPINAL ANAESTHESIA IN AN INFANT

In the recent articles published in this country on spinal anaesthesia so little has been mentioned of its use in children and infants that I consider an account of the following case of some interest.

A male child, aged 27 weeks, was admitted to the Bolton Royal Infirmary on November 25th, 1932, with a history of intermittent screaming, apparent abdominal pain, and the passing of "red-currant jelly" material per rectum. The screaming had commenced three hours before admission. The temperature was 103° F., pulse 128, and respiration 30. A mass was palpable in the left iliac fossa; rectal examination revealed only blood-stained material on the examining finger.

Operation under spinal anaesthesia was decided upon, and a small area of skin between the third and fourth lumbar vertebrae was anaesthetized with 1 per cent. novocain. Lumbar puncture was performed through this, and 3.5 mm. of 5 per cent. stovaine and glucose solution, mixed with an approximately equal quantity of cerebro-spinal fluid, was injected intrathecally. The child was then placed in a 10 degrees Trendelenburg position, which was maintained throughout the subsequent operation. At the end of four minutes anaesthesia was complete up to the nipple line. The abdomen was then opened, and an intussusception of the ileo-colic type, with the apex reaching almost to the brim of the pelvis on the left side, was found. This I reduced with ease. The abdomen was then closed. During the operation the child appeared much less distressed than previously, and during the suture of the wound he slept apparently undisturbed.

The anaesthesia was much more satisfactory than that usually obtained with a general anaesthetic in similar cases, and the child seemed to suffer the minimum of discomfort from the moment it took effect. This was most marked in the hours immediately following operation, when the child slept naturally and soundly. The subsequent convalescence was rapid and uneventful, the child taking the breast soon after the operation; at no time was artificial feeding employed. The child was discharged from hospital on the tenth day, and has since made an uninterrupted recovery.

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Reports of Societies

OXFORD OPHTHALMOLOGICAL CONGRESS

The twenty-third annual meeting of the above congress was held at Oxford on July 5th, 6th, 7th, and 8th. Members met informally at dinner on the 5th in the Hall of Keble College, which had, as in former years, again offered its hospitality. The proceedings of the congress were held in the Department of Human Anatomy of the University, kindly lent for the purpose by Professor Arthur Thomson, to whom the congress is under a deep debt of gratitude. In addition to the scientific museum, a commercial exhibition was on view, in which numerous well-known firms of ophthalmic instrument makers displayed the latest forms of apparatus and instruments used in ophthalmic surgery. As usual, a large number of foreign members and others resident abroad attended the congress, which emphasized once more the international character of this meeting. Among the visitors were Dr. Holth of Oslo, Dr. Uribe Troncoso of New York, Dr. Bernard Samuels of New York, Dr. Holm of Copenhagen, Dr. Van Heuven of Utrecht, Dr. Rau of Bangalore City, Dr. Van Poole of Honolulu, Dr. Pearson of China, Dr. Sohan Singh of Amritzar, and Dr. Meyer of South Africa.

PROCEEDINGS

The proceedings began on Thursday, July 6th, with a short address of welcome from the Master, Mr. CYRIL WALKER. Immediately following, Dr. S. HOLTH of Oslo opened a symposium on "The Treatment of Glaucoma, excluding Operative Details."

Dr. Holth described his speech as "historical remarks on the treatment of primary glaucoma." He fully described iridectomies before and after local anaesthesia with cocaine in 1884, and discussed the treatment by miotics since 1876. Next he dealt with anterior sclerectomies from the time of their introduction in 1904. An account was given of the tonometer, which was introduced in 1905, and with it the early treatment of chronic glaucoma. Dr. Holth then proceeded to a comprehensive discussion on "filtering scars" and the various methods by which they can be obtained.

Colonel ROBERT WRIGHT continued the discussion, citing freely from his large experience in Madras. He first discussed the non-congested type with markedly high tension, advanced field changes, and diminished visual acuity. He described the preliminary treatment to reduce tension so that operation could be performed under the best conditions, and emphasized the advantage of the adrenaline pack, together with the frequent use of eserine and massage. If the tension did not fall he preferred to perform an anterior sclerotomy, watching the effect on the iris vessel with operating lenses. He also favoured cyclodialysis, which had given astonishingly good results. In a second group of cases in which the symptoms were not so marked, careful field-taking, tonometric observations, and watching the effect of non-operative measures were recommended. The operation of iridencleisis was warmly commended, but it was felt necessary in these cases to keep in touch with the patient for some little time afterwards. Colonel Wright discussed the question of operation in mild or early cases, where the tension was only raised a trifle, and that occasionally. The treatment of acute congestive primary glaucoma was then gone into in detail, and the intravenous injection of hypertonic solution of sodium chloride was praised. Acute secondary glaucoma and its treatment was also dealt with. The discussion was continued by Dr. GEORGE YOUNG and Dr. BURDON-COOPER, who dealt with the non-operative treatment of glaucoma.

Dr. URIBE TRONCOSO of New York then gave a most interesting paper on clinical gonioscopy, introducing details as to the use of the gonioscope and the findings in normal eyes. In the second part of his remarks he described minutely the clinical appearances as seen with his instrument after operations for glaucoma. In the afternoon Dr. DOROTHY CAMPBELL gave a highly technical paper on the chemical pathology of cataract, which was followed by another on the same subject by Dr. BURDON-COOPER. Mr. H. J. TAGGART then read a well-illustrated paper on the treatment of ptosis by a modification of the Motais operation. Mr. ZORAB related a successful case which had been operated upon by this method. In the afternoon the members of the congress and their friends had tea at Wadham College, being received by the Warden and Mrs. Stenning, and were shown the beautiful gardens.

The annual dinner of the congress, at which 108 members and their friends sat down, was held the same evening, presided over by Mr. Cyril Walker, the Master.

MEMORIAL LECTURE AND OTHER PAPERS

On July 7th Dr. STOBIE, physician to the Oxford Eye Hospital, gave an interesting address on the constitutional factor in diseases of the eye. Passing from the subject of errors of refraction and the state of health, he discussed the factors in phlyctenular conjunctivitis—infection or diet. The role of tuberculous infection in iridocyclitis was also described. The speaker then dealt with the difficulty of obtaining negative blood tests in the treatment of interstitial keratitis, and the early ocular symptoms of disseminated sclerosis. Next he attempted to correlate the general picture of hyperpiesis, arterial sclerosis, and renal disease with retinal findings, and made some observations on treatment.

The Doyne Memorial Lecture was given by Mr. BERNARD CRIDLAND, the subject being "Investigations on the Aftermath of Cases of Intraocular Foreign Bodies." This lecture does not lend itself to abstraction, and should be read in the original. It embodied case records of intraocular foreign bodies which had remained in position for five years and over. At the conclusion the Master, after complimenting the lecturer, presented him with the Doyne medal.

Dr. R. S. CREED then gave a highly technical address on ocular after-images, presenting most interesting details of his experiments in these phenomena. This paper was discussed by Mr. CYRIL WALKER, Dr. YOUNG, and Mr. HARRISON BUTLER.

In the afternoon a discussion on diathermy in ophthalmology was opened by Mr. FRANK LAW of London, who described in some detail the technical side, and the clinical results obtained in various diseases—notably, glaucoma and corneal affections. He was followed by Mr. AFFLECK GREEVES, with an account of Safar's operation for detached retina. Mr. F. A. ANDERSON gave a highly technical paper on the localization of intraocular foreign bodies by the method of Professor Dr. Guido Holzknecht, describing his own modifications of this method. Dr. ROSA FORD read a paper on recovery from strabismus amblyopia after twenty-nine years by continuous drainage of the nasal accessory sinuses. On Saturday morning Dr. BERNARD SAMUELS of New York gave a very exhaustive paper on a study of eighty-five cases of necrotic sarcoma of the uvea. He pointed out that in gliomata necrosis took place early, whereas in sarcomata the toxic effect was much more marked. The paper was discussed by Mr. HARRISON BUTLER and Colonel WRIGHT. Mr. ALABASTER and Mr. STIRK ADAMS then gave, in a preliminary communication, the results of an inquiry into the conditions of the ears in miners' nystagmus.

This concluded the proceedings of the congress, which all agreed had been a most successful one. The Master stated in his closing remarks that 121 members had attended.

VENEREAL DISEASES

The sixth Imperial Social Hygiene Congress, organized by the British Social Hygiene Council, was held at the London School of Hygiene and Tropical Medicine from July 3rd to 7th, under the general presidency of Sir Basil Blackett. Reports were made and discussions took place on imperial health services, social education, the outlook on prostitution, and the teaching of biology. Two medical sessions were held, one of them dealing with problems in the treatment of acute gonorrhoea, and the other with administrative measures in connexion with venereal disease.

TREATMENT OF ACUTE GONORRHOEA

Mr. DAVID LEES (Edinburgh), in the course of some observations on the prevention of complications in acute gonorrhoea, especially in the male, said that there was no doubt that the course of a gonococcal infection could be cut short and many of the complications which followed on an established urethritis obviated if infected persons could only be educated to seek medical advice as soon as they felt the slightest discomfort in the urethra subsequent to having taken the risk of infection. In established gonorrhoea of more than twenty-four hours' duration the prevention of complications called for co-operation between the patient and his medical attendant. Avoidance of physical overstrain, complete abstinence from alcohol in any shape or form, and the avoidance of sexual excitement or excess were essential. He emphasized the importance of avoiding instrumental interference with the urethra until all acute symptoms had subsided completely, and spoke of the value of prostatic and vesicular massage in the declining stages of all cases, especially in those of posterior urethritis. On the subject of adjuvant methods of treatment Mr. Lees said that he had found uncomplicated cases of gonorrhoea in both sexes, especially those seen in the earlier stages, derive marked benefit from the administration of an appropriate vaccine. He favoured a detoxicated vaccine in that it might be given in moderately large doses without producing any severe reaction. When the urethral symptoms were very acute, and in complications such as prostatitis, vesiculitis, and prostatic abscess, he had been more successful in alleviating the acute manifestations of the disease and in preventing further complications by giving a protein. Serum treatment or passive immunity had not in his experience proved successful in gonorrhoea.

Dr. GLADYS SANDES (London Lock Hospital), in dealing with the prevention of complications in the female, said that the first essential in treatment was to establish an accurate diagnosis, and this should be done primarily by clinical observation and confirmed by pathological examination by a skilled pathologist. By the trained observer acute gonorrhoea could nearly always be diagnosed clinically. When such diagnosis was the probable one, it was much better to do too little than too much. It was quite time enough to begin active local treatment when the disease had become subacute. As for complications, these could not always be avoided even in the most skilled hands. Urethral massage and a careful search for infected Skene's ducts reduced the likelihood of the formation of a suburethral abscess, but to prevent the development of Bartholin's abscess was more difficult.

Dr. EDWARD L. KEYES (president, American Social Hygiene Association) spoke somewhat sceptically of antiseptics, which, he said, were commonly used in such dilutions as to diminish greatly any value they might possess. The drugs which did well were of the class which he was inclined to call, for want of a better word, astringents. It was not so much the claim that local remedies had antiseptic properties which appealed to him as the fact that they practically reduced the inflammation of the urethra ; in this respect permanganate of potassium seemed to stand out above all others.

Dr. A. S. PLANT (Grimsby) said that the development of a peri-urethral abscess, if got under control in time, and aspirated in such a way that it did not burst into the urethra, afforded an admirable and rapid means of curing the gonorrhoea. He assumed that the abscess caused the rapid formation of antibodies, and he suggested that it might be worth while to create an artificial gonococcal abscess in some position where it could not communicate with the urethra.

The further discussion, in which several delegates from over-seas participated, tended to stray into the question of administration. Dr. E. T. BURKE (Salford) spoke in praise of detoxicated vaccines, saying that at a certain clinic of which he had had experience, during a period in which vaccines were used there were no in-patients suffering from complications in gonorrhoea, but after the vaccines were stopped on the ground of economy the number of in-patient days during the next twelve months had been 192.

ADMINISTRATION OF VENEREAL DISEASES MEASURES

Colonel L. W. HARRISON (Ministry of Health), in opening a discussion on this subject, said that there were 126 venereal diseases treatment centres in England and Wales under arrangements with voluntary hospitals, and sixty-two conducted by county and county borough councils. There were thirteen hostels for the care of certain girls, not prostitutes in the ordinary sense, and a number of other institutions, together with eighty-five approved laboratories for the examination of specimens. The quality of the work at the treatment centres, of course, depended on the convenience of the premises and the keenness of the personnel, and in both respects he thought that progressive improvement could be claimed since the venereal diseases scheme was initiated. One great obstacle was the idea still prevalent in many areas that efficient treatment of venereal diseases was within the competence of any practitioner who could put a needle into a vein and give an intramuscular injection. Another obstacle was the indifferent supply of real specialists in venereal diseases. Just after the war many medical officers who were interested and skilled in the management of venereal diseases were available, but most of the clinics were already staffed at that time with medical officers who had remained in practice, and most of these others reverted to general practice. Since then there had been no rush of young men to specialize in venereal diseases. Unfortunately this was the Cinderella of all medical specialties. It was often said that it was a narrow specialty, but, in fact, it took all one's time to keep abreast of the literature. True, there was not much attraction in venereal diseases for anyone in search of material reward. He desired to see a good working knowledge of venereal diseases made an essential qualification for entry into the public health service. On the subject of the education of the public he touched upon one very definite defect. For every woman under treatment there must be at least one other going untreated. This he concluded from the fact that while in syphilis the ratio of new female cases to new male cases was as 1 to approximately 1.6, in gonorrhoea the corresponding ratio was 1 to 3.9. Women generally were not aware of the importance of having apparently innocent discharges examined.

Surgeon-Commander R. J. G. PARNELL, R.N., gave some account of the factors influencing the decrease of venereal diseases in the Navy. During the last forty years the ratio for syphilis had declined from 51.66 per 1,000 to 5.55, and the ratio for gonorrhoea from 76.87 per 1,000 to 41.58. The factors which had led to the decrease were the changed type of man enlisted, together with his more healthy environment. Prophylactic measures also had had some effect. The naval rating to-day was better educated, more temperate, and keener on games and sport than his predecessor of forty years ago. He felt sure also that the remarkable reduction in the incidence of syphilis was in a large measure due to more efficient treatment of the civil population, whereby that population was rendered less infective.

In the course of discussion, Lieut.-Colonel A. P. G. LORIMER, I.M.S., gave an account of the position in Madras, and maintained that in India the venereal diseases problem could only be efficiently undertaken by a well-disciplined and well-organized State medical service ; Dr. J. DANEEL described the conditions in South Africa, especially deploring the absence of facilities for treatment of natives on the Rand ; and Dr. C. J. AUSTIN spoke of Fiji. Other speakers, notably Dr. JOHN GUY (Edinburgh) and Dr. W. G. CLARK (Glasgow), discussed the relationship of the venereal diseases officer to the medical officer of health, and a further subject of discussion, largely participated in by Scottish representatives, was as to any means of compelling the continuance of treatment until cure. Dr. Clark urged the separation of syphilis from gonorrhoea administratively, and the taking of measures to deal with syphilis by way of a scheme on a level with the tuberculosis scheme.

Mr. DAVID LEES (Edinburgh), who presided, said that he had a good deal of sympathy with such proposed separation, but more sympathy still for any proposition

to cut out the word "venereal" from the legislation on the subject and from the institutions for diagnosis and treatment. Over 60 per cent. of female patients had not acquired their infection venereally, and it was unfair to expect them to attend a department labelled with that name.

THE DIET OF ANIMALS

The Cavendish Lecture was delivered before the West London Medico-Chirurgical Society on June 29th by Sir PETER CHALMERS MITCHELL, F.R.S., secretary of the Zoological Society, his subject being "The Diet of Animals."

Sir P. Chalmers Mitchell spoke first on the relation between diet and growth. Some mammals, he said, appeared never to attain adult stature. The process of growing slowed down, but death by disease or accident generally overtook them before they had grown as big as they could become. That seemed to be true of the whale, the elephant, and probably the rhinoceros. Where growth was continuous in that way, of course, there was not the change from the fuller diet of youth to the more restricted diet of full growth. In birds the transition from the period of growth to the adult stage was always very definite. Birds attained adult stature very quickly indeed, and there was a fixed average size for every species. Reptiles appeared to have no infantile stage. From the moment of birth or hatching they were small miniatures of their parents, following the same habits and living on the same food. Amphibians, on the other hand, had a definite infantile stage. It was often stated that a number of mammals never drank water. It was true that certain mammals living in desert regions could obtain water only occasionally, but in captivity these animals took every chance of drinking, and often drank to excess. Certain animals were addicted to alcohol. With most creatures it was difficult to get them to take it medicinally, but certain groups of animals liked it instinctively; these included the asses and zebras, and elephants also showed addiction. It was worth remembering that the digestive processes of mammals and many other kinds of animals were much more accommodating than might be supposed. A famous case was on record of a French horse which was trained for the Derby on a purely nitrogenous diet and did well. John Hunter fed a gull entirely on grain, and beyond changing the character of the lining membrane of its stomach, did it no harm. The distinction between carnivorous and herbivorous animals also was not as clear as was often supposed. Apes and monkeys as a whole were quite definitely vegetarian, but the lower ones would take a good deal of insect food and grubs, and the big apes would eat small animals. A fine pair of gorillas were brought up in the French Congo by a Frenchman and his wife on the ordinary diet of meat, fish, and vegetables which they themselves consumed. The larger carnivora—lions and tigers—seemed to be immune to the whole group of ptomaine poisons; on the other hand, the smaller cats were extremely susceptible. The true carnivora were carnivorous with a tendency towards vegetable diet, and the big ruminants, like horses and asses, zebras, and the rhinoceros and the hippopotamus, while as a rule pure vegetable feeders, showed now and again examples of omnivorous eating.

The lecturer went on to point out that the alimentary tract of all these animals was accustomed to deal with a very rough kind of diet—a diet of large bulk for the nutriment it contained. Monkeys in the wild did not get nice tomatoes, beans, and lettuces, but fed on hard banana leaves, shoots of trees, and roots of all kinds, and the structure of their intestinal tract was arranged to deal with hard and unnutritious food. When cultivated food, such as cereals, bread, and fruit, which was very nutritious in proportion to its bulk, was given to them they tended quickly to become over-fed, with fatty degeneration of the liver; or if a smaller bulk of food with the proper amount of nutrition was given peristalsis did not take place normally. Not sufficient attention was paid, perhaps even in human dietary, to the necessity of getting indigestible bulk with the nutritive element.

Reviews

HEART RATES

In their work *The Heart Rate*[1] BOAS and GOLDSCHMIDT have made a very interesting study. Using an apparatus which they have invented and called the cardiotachometer, they have been able to obtain records of the heart rate over long periods of time. The heart currents are led off the chest by electrodes placed over the heart and the currents activate a recording apparatus after suitable amplification. In the space at disposal it is only possible to touch briefly on the numerous interesting records obtained by these workers. They have recorded the rate of the heart in healthy and in diseased persons in almost every possible circumstance and activity. In healthy men they found that the average rate during sleep was 59, and in women 65. During the day's activities the range of the heart rate is remarkable, the average maximum and minimum rates in males being 111 and 61 respectively, with 120 and 53 for females. Attempts were made to correlate the heart rate with bodily measurements. They came to the conclusion that it was unlikely that any anatomical measurements had any direct relation to the heart rate. As regards blood pressure, the lower pressures seemed to be associated with the slower rates.

Extensive observations were made of the heart rate during sleep. The lowest rates were recorded after about five hours' sleep. The deeper the sleep the slower was the rate. Posture during sleep had no effect, but movements caused acceleration. The authors conclude that the slowing of the heart during sleep is the result of passive relaxation of activity, and also of active vagal inhibition. Many records were taken of subjects in their daily activities. Action leads to increase in heart rate by loss of vagal tone, and by acceleration due to increase in venous return. It was remarkable how the ordinary activities of the morning toilet led to cardiac acceleration. Studies of heart rate during eating, micturition, defaecation, coitus, and so forth were also made. Under anaesthesia the heart rate was usually constant once induction was complete. Interference with viscera sometimes caused slowing. In disease, confirmation of the value of ascertaining the sleeping rate in diagnosing doubtful cases of myocarditis was obtained. The persistent tachycardia of thyrotoxicosis during sleep was noted. Records demonstrating the instability of the ventricular rate in auricular fibrillation were obtained. The importance of nervous influence causing undue acceleration in this condition are well shown.

The book is full of valuable and helpful information on a subject of great practical importance. Perusal of its pages will bring home the necessity of remembering the effects of small everyday things of life upon the action of the heart. It is thus of much value, both for the cardiologist and for the ordinary practitioner.

RADIOGRAPHY OF THE LUNGS

The monograph on The Value of Radiographic Examination in Diagnosis of the Lungs,[2] by TORLEIF DALE, is published as the sixteenth supplement of the *Acta Radiologica*. The author, having found that the interpretation of lung radiographs presented many difficulties, has made a special study of the subject, extending over the past three years, with the object of correlating

[1] *The Heart Rate*. By E. P. Boas, M.D., and E. P. Goldschmidt, Ph.D. London: Baillière, Tindall and Cox. 1932. (Pp. 166; 30 tables, 68 figures. 18s. 6d. net.)

[2] *Der Wert der Roentgenuntersuchung in der Lungendiagnostik*. Von Torleif Dale. *Acta Radiologica*. Supplementum XVI. Stockholm: P. A. Norstedt und Söner. 1932. (Pp. 111; 57 figures. 10 Swedish Crowns net.)

radiographic appearances with anatomical and pathological findings. He stresses the fact that pathological anatomy is an invaluable aid to radiological diagnosis, and that this is true not only as regards the lungs but with respect to pathological changes in other organs, a correct diagnosis being arrived at only by the correlation of radiology and pathological anatomy. The work is beautifully illustrated, and the author has made use of abrodil injections of the bronchi to illustrate the main points in his thesis. Most of the inflammatory conditions of the lungs and pleura are described, and, by comparing the radiographs taken during life with radiographs taken of post-mortem specimens, much new and interesting information has been obtained. This has enabled the author to come to definite conclusions both regarding lung changes which can be diagnosed in a radiograph and, what is equally important, those changes that lie outside the realm of radiology. The monograph can be highly recommended to all those interested especially in diseases of the lungs.

CARE OF HANDICAPPED CHILDREN

The White House Conference on Child Health and Protection has been responsible for many tens of thousands of printed words and for the accumulation of much statistical and other knowledge, of more or less reliability, concerning social and educational conditions in the United States of America ; but the ideas and suggestions for action arising therefrom have for the most part been of a vague, platitudinous, and axiomatic character. This remains true of the most recent report of the Committee on Physically and Mentally Handicapped Children, now published under the title *The Handicapped Child*.[3] At the beginning of the volume there are printed the names of no fewer than one hundred and forty-five persons who were members of " Committee B " in its various sections, and no doubt each of these may be credited with some measure of responsibility for the report, but a large share in shaping its final form doubtless remains with Dr. William J. Ellis, its chairman, and Emil Frankel, its research secretary. The children of America are again apostrophized as those " whose faces are turned towards the light of a new day and who must be prepared to meet a great adventure." Over and over again it is emphasized that handicapped children are entitled to care, treatment, and training, both for their own sakes and in order that they may become an asset to society instead of a liability. In this country we do not regard either the importance or the rights of childhood as needing quite so much reiteration. The varieties of handicap from which children may suffer are passed in review, each on a similar pattern—defects of hearing and of vision, crippling deformities, internal conditions such as those arising from tuberculosis, heart disease, and internal parasites, mental abnormalities, and mental deficiency. The results of inquiry into the prevalence and distribution of these in the United States are set down, their possible causation, the present means of dealing with them, and directions in which an extension of these is needed, are noted, and there is a final chapter on vocational guidance.

Apart from the convenience of an orderly assemblage of such particulars as these in one volume, the most valuable and interesting features of the book will be found in the chapters on mental health and mental deficiency. Indeed, the earlier part of the former of these chapters may be said to be of real importance, since it presents very effectively several aspects of the truth which too frequently pass unregarded or unrecognized. There is a definition of mental health as " that adjustment of human beings to themselves and to the world at large which results in a maximum of personal and social effectiveness and satisfactions," and the implications of this definition are wisely enlarged upon. " Nothing can be more fallacious than the interpretation of mental health in strictly individualistic terms. Positive mental health is but the personal aspect of a society in which personal and social values are in right relation to each other and are attainable by everyone within the limits of his biological capacities." So, with regard to mental deficiency there is reasonable estimation of its meaning and prevalence and of its relation to mere dullness and degrees of intelligence. Its hereditary causation and its social and racial consequences are not over-emphasized as is so commonly done. Though a very carefully selective sterilization is on the whole approved, its strict limitations of value, both individual and racial, are stressed, and the urgent need for further knowledge and research into the character and causation of the varieties of mental deficiency is insisted upon.

[3] *The Handicapped Child.* Report of the Committee on Physically and Mentally Handicapped Children. Chairman: Wm. J. Ellis, LL.D. White House Conference on Child Health and Protection. London: D. Appleton and Co. 1933. (Pp. xxv + 451. 15s.)

BUCCO-DENTAL PATHOLOGY

Pathologie Buccale, Péri-buccale et d'Origine Buccale[4] is the first of a series of nine volumes entitled " Pratique Stomatologique," and owes its production to Drs. ROUSSEAU-DECELLE and RAISON. The whole work is published under the direction of Dr. Chompret, who has chosen as his collaborators men having personal experience who will deal with their own specialties. The present volume is divided into two parts, the first dealing with buccal and peribuccal pathology, and the second with general pathology in relation to bucco-dental pathology. The authors throughout have justified the confidence of their chief. On every page one finds evidence of mature thought and wide observation. Of this the chapter on stomatitis is a good example. According to the authors, one form only can be considered primitive—aphthous stomatitis ; the ground is generally prepared for the others by the existence of a tartar-stomatitis. Aphthous stomatitis itself is carefully compared with foot-and-mouth disease, and the conclusion is reached that it is a virus disease but that the virus is entirely distinct from that of the cattle disease. It is interesting to note that, contrary to British experience, the authors' observations lead them to conclude that a high palate is a stigma of degeneration, found in idiots, epileptics, cretins ; that it is also often a consequence of rickets, and very often a dystrophic sign in hereditary syphilis.

On reading the second part of the volume it becomes evident that the authors are acutely aware of the dangers of dental sepsis, and one gathers that they regard pyorrhoea as at least as injurious as " dead teeth." In a note on edentulous dyspepsia and fetid diarrhoea the observations of Roger on the activation of pancreatic juice by salivary ferments are quoted (Roger found that the salivary ferment passes through the stomach and doubles the action of the pancreatic juice on fats) as showing the necessity for thorough mastication. To whatever disease one turns one finds the same succinct and thorough review of the salient points. The authors are to be congratulated on the good work they have done.

DISEASES AND INJURIES OF THE EYE

The new book in the Practitioner's Series on the *Diseases of the Eye*,[5] by Mr. RUGG-GUNN, presents many attractions. It deals essentially with diseases and injuries, and their prevention and treatment. So that whilst there is a good general account of the meaning and effects of

[4] *Pathologie Buccale.* Par les Drs. Rousseau-Decelle et Raison. La Pratique Stomatologique, I. Paris: Masson et Cie. 1933. (Pp. 576 ; 196 figures. Broché 70 fr. ; relié toile 85 fr.)

[5] *Diseases of the Eye.* By A. Rugg-Gunn, M.B., F.R.C.S. Practitioner's Series. London: W. Heinemann, Ltd. 1933. (Pp. 188 ; 21 figures, 8 plates. 12s. 6d. net.)

errors of refraction no attempt has been made to give instruction in the methods of determining these errors. Again, there are clear and useful accounts of the means of detecting defects of muscle balance and their treatment, and also of patent squint, but details of operative methods are omitted. This selection has allowed the author to concentrate upon the main theme of his book. In the consideration of diseases and injuries an excellent perspective is maintained. The more common diseases are described with nicety ; their causes and relations to general bodily conditions and social states are clearly and tersely indicated. Treatment is considered at length, and the lines suggested are thoroughly modern and practicable. Diseases of less frequent occurrence are brought into review more as a means of suggesting caution in diagnosis, and this is as it should be in a work of this character. Despite the necessarily limited compass of the book, it amply fulfils its purpose. It is well written, and the author has the power of conveying his meaning to his reader with a minimum of words. There are few books of this order which can be read with more pleasure and profit: it is not merely a short index of ophthalmic treatment.

The make-up of the book is excellent: good paper, legible print, and plenty of clear illustrations. The figures are all reproduced in black-and-white, including the fundus drawings, which are none the less as characteristic as though they had been done in vivid colour. In a future edition the author might consider the desirability of breaking up the series of illustrations on page 143 (showing the true and false images found in paralysis of external ocular muscles) and setting the legend of each condition under its appropriate figure. Diagnosis of paralysis is a veritable maze to the student, and grouped figures with detached captions are not helpful.

Notes on Books

In a reprint of a series of wireless talks entitled *From a Doctor to a Mother*,[6] the British Broadcasting Corporation has included short lectures by Mr. EARDLEY HOLLAND, Dr. REGINALD JEWESBURY, and Dr. WILFRED SHELDON. They deal with the management of maternal and infant health from the early months of pregnancy to the end of the second year of the child's life. Mr. Eardley Holland has dealt with the period before birth, laying down clear rules for the guidance of the mother and striking a reassuring note throughout. Dr. Jewesbury has covered the difficult ground of natural and artificial feeding concisely and with unusual simplicity ; there is nothing here to bewilder the inexperienced mother, and much to help her. He includes appropriate menus for the child from the age of 8 months to 2 years and over. In the final chapters Dr. Sheldon touches on normal development, disturbances of sleep, and the prevention of nervous habits. The book is fitted quite admirably for its purpose, which is to supplement the advice of the patient's own doctor and nurse, and it deserves to be used widely in welfare centres.

The number of names in the *Dentists Register*[7] for 1933 is 14,528, an increase of fifty-six over the figure for the preceding year. Of these there are 7,500 (51.62 per cent.) registered with medical, surgical, or dental qualifications, as compared with 7,304 in 1932. Only six out of the 248 new British entries in the last twelve months did not hold such qualifications. Death and other causes were concerned in the removal of 476 names ; 282 which had been omitted from previous editions for various reasons now reappear. The *Register* this year contains an "Important Notice" on the liability to disciplinary action in cases of covering, advertising to obtain patients, canvassing, improper announcements regarding branch practices, the incorrect use of titles, notices about insurance practice, commission paid or allowed in return for the recommendation of patients, and convictions for drunkenness as well as for graver offences.

The second volume of the *Royal Berkshire Hospital Reports*[8] has now appeared. Most of the papers were read at meetings of the Reading Pathological Society, and thus this volume serves as its Transactions. Copies may be obtained from the secretary at the hospital. For financial reasons it has been decided to issue the next two volumes together in 1935. As in the first volume, the present one comprises records of cases, as well as lectures on clinical and pathological subjects.

[6] *A Doctor to a Mother*. By E. Holland, F.R.C.S., R. C. Jewesbury, M.D., F.R.C.P., and W. Sheldon, M.D., M.R.C.P. London: E. Arnold and Co. 1933. (Pp. 96. 1s. 6d. net.)

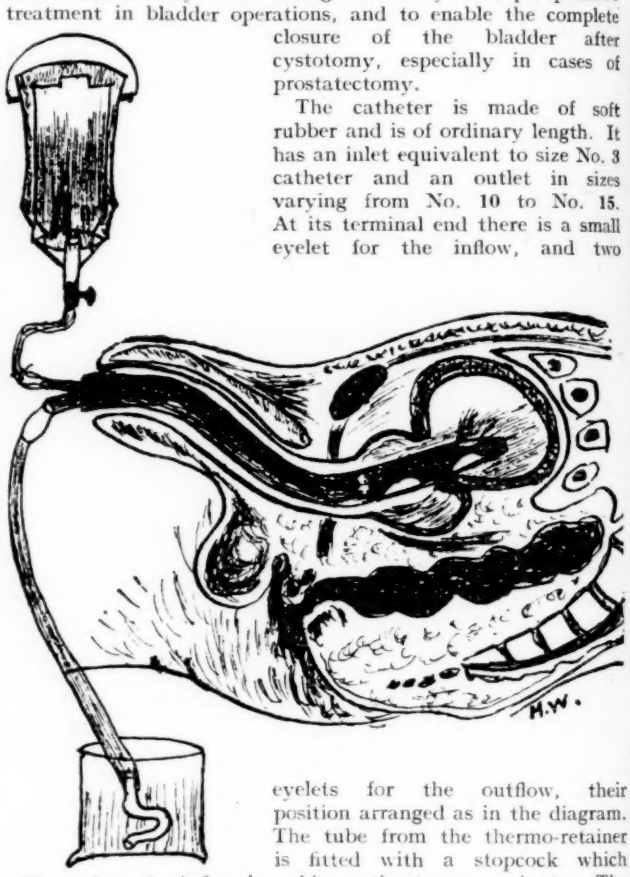
[7] Published for the General Medical Council by Constable and Co., Ltd., 10, Orange Street, W.C.2.

[8] *Royal Berkshire Hospital Reports, 1933*. Edited by H. S. Le Marquand, M.D., M.R.C.P. (Pp. 160 ; 32 figures. 10s. 6d. net.)

Preparations and Appliances

TWO-WAY URETHRAL CATHETER AND THERMO-FLASK RETAINER

Mr. MORTON WHITBY, chief assistant to the genito-urinary department, West London Hospital, writes: I have had made for me to my design a soft rubber two-way urethral catheter and thermo-flask retainer, as shown (*in situ*) in the accompanying sketch, for the purpose of obtaining heated fluid continuous urinary bladder irrigation in cystitis, preoperative treatment in bladder operations, and to enable the complete closure of the bladder after cystotomy, especially in cases of prostatectomy.



The catheter is made of soft rubber and is of ordinary length. It has an inlet equivalent to size No. 3 catheter and an outlet in sizes varying from No. 10 to No. 15. At its terminal end there is a small eyelet for the inflow, and two eyelets for the outflow, their position arranged as in the diagram. The tube from the thermo-retainer is fitted with a stopcock which will regulate the inflow in cubic centimetres per minute. The outflow passes through a tube which is connected at its end to an S-shaped tube, and passes into a pail of antiseptic fluid. The flow is started by turning on the stopcock to the required rate and, after a short flow, using suction on the outlet, when the flow will be continuous. Blockage can be prevented by reversing the flow for a few minutes every half-hour or so. The best rate is 8 c.cm. per minute, which just keeps the bladder moist and washes away all debris. If the condition of the bladder is bad the rate of flow should be increased. If it is desired to keep the bladder dry a Cathcart's apparatus can be used with the catheter. The catheter is retained by zinc plaster.

The entire apparatus is made by W. Gimber and Son (2, Queen's Road, Peckham, S.E.15).

ONE HUNDRED AND FIRST ANNUAL MEETING
of the
British Medical Association
DUBLIN, 1933

THE one hundred and first Annual Meeting of the British Medical Association will be held in Dublin this month under the presidency of Dr. T. Gillman Moorhead, Regius Professor of Physic, Trinity College, who will deliver his address to the Association on the afternoon of Tuesday, July 25th. The sectional meetings for scientific and clinical work will be held, as usual, on the three following days, the morning sessions being given up to discussions and the reading of papers, and the afternoon to demonstrations. The Annual Representative Meeting for medico-political business will begin on the previous Friday, July 21st. The lists of officers of the sixteen Scientific Sections and the subjects for discussion, together with other information about the meeting, were published in the SUPPLEMENT *of July 1st.*

We publish below the fifth of a series of descriptive articles on Dublin and its medical institutions. The first appeared in our issue of December 3rd, 1932 (p. 1026); the second, on the History of Dublin, on March 18th, 1933 (p. 476); the third, on the Dublin of To-day, on April 22nd (p. 710); and the fourth, on the University of Dublin, on May 13th (p. 837).

THE SCHOOLS OF MEDICINE IN DUBLIN IN THE NINETEENTH CENTURY

By T. PERCY C. KIRKPATRICK, M.D., M.R.I.A.,
Fellow and Registrar of the Royal College of Physicians of Ireland

The nineteenth century witnessed many changes in the social, economic, and political conditions of Ireland, but in none of these was the change more pronounced than in the teaching of medicine. When the University of Dublin and Trinity College were founded in the last decade of the sixteenth century they were given the privilege of conferring degrees in all faculties, but this privilege was largely neglected, and the University remained content merely to grant degrees in the faculties of arts and theology, while there was little or no pretence of teaching any other subject. As Provost Bedell said in 1628, Trinity remained "one poor College of Divines." The foundation during the Commonwealth of the Fraternity of Physicians, which, after the Restoration, was incorporated as the College of Physicians, led to some teaching in medicine, but such teaching was unsystematized, and amounted to little more than a few anatomical demonstrations and an occasional public lecture. Early in the eighteenth century, mainly through the influence of Sir Patrick Dun, a medical school was started in Trinity College, and Dun bequeathed to the College of Physicians a considerable sum of money to assist the development of medical teaching.

The medical school of Trinity College, started under excellent auspices, did not fully justify its early promise. Disputes between the Board of Trinity College and the Fellows of the College of Physicians, the two governing bodies of the school, greatly hampered progress, and at one time threatened extinction of the school. In the early part of the second half of the century, while George Cleghorn was lecturer in anatomy, the school became a centre of anatomical teaching of considerable importance, but even then the want of harmony among the teachers prevented its full development in other directions. As the century drew to a close this disharmony became accentuated, and after the death of George Cleghorn the school dwindled almost into insignificance. The efforts made to develop clinical and practical teaching in medicine failed hopelessly owing to the disagreement of those who held professorial chairs in the school. In 1800 the Irish Parliament, just before it disappeared, passed an Act which alienated the greater part of Dun's estate from the teaching of medicine, and applied it to the building and the endowing of a hospital where clinical lectures might be given. This project, prompted by the jealousy of Robert Perceval, was carried out in spite of the opposition of the College of Physicians, and in spite also of the fact that there were already in the city several hospitals, each of which might better have fulfilled the purpose for which the new hospital was designed.

MEDICAL CORPORATIONS IN THE EIGHTEENTH CENTURY

During the eighteenth century whatever surgical education there was had been under the control of the barber-surgeons or the Guild of St. Mary Magdalene, which had been founded by Henry VI in the year 1446, reincorporated by Elizabeth in 1572, and granted a new charter by James II in 1687. Surgeons learned their art as apprentices to members of the Guild, and even when the Guild began to lose its authority and to become more and more a political caucus, the regulations for apprenticeship continued strictly to be maintained. An examining board, constituted by Act of Parliament to select surgeons for the newly established county infirmaries, rejected a larger number of candidates for not having fulfilled their indentures than for lack of knowledge of surgery.

On February 11th, 1784, as the result of a long-sustained agitation, a number of Dublin surgeons were incorporated by charter as the Royal College of Surgeons in Ireland, with the special objects of establishing a school for the teaching of surgery and of granting licences to practise to properly qualified surgeons. Almost immediately after incorporation the College of Surgeons started a school, but it was not until the new century had commenced that suitable premises were provided for it and a great teacher arose who was to gain for the school a world-wide reputation. Although in practice the foundation of the College had separated the surgeons completely from the barbers, yet nominally they remained united until the city guilds disappeared in consequence of the passing of the Municipal Corporations (Ireland) Act in 1840.

In 1745 George II incorporated the apothecaries, who had previously been united with the barber-surgeons, as a separate guild, the Guild of St. Luke. This was the last guild to be constituted in Dublin, and its members do not seem to have been very popular. In some verses on the Riding of the Franchises, published anonymously in 1767, it is said:

> "See, where the proud Apothecaries drive,
> Who most by fraud and imposition thrive,
> Whose monstrous bills immoderate wealth procure
> For drugs that kill as many as they cure.
> Well are they placed the last of all the rout,
> For they're the men we best can do without."

In this procession the barber-surgeons followed the smiths, fourth in the list of the twenty-five city guilds, but in describing them it was their barber-craft, and not their surgery, to which the writer of the above lines referred. In 1791 the Dublin apothecaries were incorporated as the Governor and Company of the Apothecaries' Hall, and although, like the Guild of St. Mary Magdalene, the Guild of St. Luke persisted till 1840, the new company took over any of the remaining professional activities of the guild. The Act of 1791 granted to the Apothecaries' Hall powers for licensing persons to practise as apothecaries in Ireland, but such persons, as a matter of fact, engaged largely in the practice of both medicine and surgery. Although making a licence to practise compulsory, the Act did not lay down any definite curriculum for those seeking the qualification. The Company, however, set up a Hall in Mary Street, Dublin, and appointed William Higgins as chemist. Higgins apparently had some duties to perform as a teacher, but there was no regular school attached to the Hall until 1837.

Thus at the end of the eighteenth century there were four corporations in Dublin—the University, the King and Queen's College of Physicians, the Royal College of Surgeons, and the Worshipful Company of the Apothecaries—all of which were interested in the teaching and licensing of those seeking to practise medicine and surgery. The University and the College of Physicians had joint control of the School of Physic, while the College of Surgeons had complete control of its own school. The Company of Apothecaries had not then established any school for its students, who had to learn their business as apprentices.

Medical Teaching in the Nineteenth Century

The great movement in the British Isles for the establishment of voluntary hospitals, which originated in Dublin in the first decade of the eighteenth century, had resulted in the foundation of six general hospitals for the treatment of the sick and poor in the city. There were, besides, a large lying-in hospital, an asylum for the reception of the insane, a hospital for incurables, a Lock hospital for both men and women, and a military hospital for the reception of soldiers of the garrison. At least two public dispensaries for the treatment of the poor as extern patients were also largely attended. Dublin had even then pledged itself to the principle of having many small institutions for the treatment of the sick rather than a few large ones, a principle which has since been maintained, not without success. Although hospital attendance was not required from the students by the licensing bodies, yet many students, especially the apprentices, attended these hospitals, and there learned, practically, their work. The number of institutions which were engaged both in teaching students and in treating the sick afforded opportunity to the physicians and surgeons of Dublin to prove their worth, and the competition for the more valuable posts encouraged hard work among those who were anxious to outstrip their rivals. The slack and the incompetent were easily detected by the public when compared with the energetic and resourceful men who were pressing forward under the stimulus of a laudable ambition. About this time, too, there grew up a tradition, which since has become well established in Dublin, that for newly qualified men private teaching is not only profitable, but is also the surest way to preferment in the profession. Private teaching was not then hampered with any strict requirements enforced by the examining and licensing bodies; provided an apprentice had properly completed his indentures, and the student could answer the theoretical questions put to him by his examiners, there was little effort made to test his practical knowledge, and no inquiry was made as to where or how he had learnt his work.

During the first quarter of the nineteenth century all these resources for teaching and for the treatment of the sick were used to their full capacity, yet, in spite of them, the demand for teaching was soon to exceed the supply. It is not possible to make an accurate estimate of the number of persons in Ireland who, during the eighteenth century, were anxious to study medicine, but that the number was considerable is shown by the figures which are available. During the fifty-two years 1748 to 1800, 293 Irish students took the M.D. degree in the University of Edinburgh, while many others graduated in Glasgow and Aberdeen; quite a large number went to universities on the Continent, where those who professed the Catholic religion had perforce to seek the education which was denied to them at home. The European war in which England was engaged at the time had created an urgent demand for Army medical officers, while the existence of that war made it more difficult for Irishmen to get medical education abroad. Dublin had also the advantage of being well supplied with the material for the study of human anatomy, and indeed for many years before the passing of the Anatomy Act a considerable export trade in that material was done from Ireland to both England and Scotland.

At the opening of the nineteenth century neither the School of Physic nor the school of the College of Surgeons was in a very active state. The latter school was hampered by insufficient accommodation—it was not till 1809 that the new buildings in Stephen's Green were ready for use. In the School of Physic James Cleghorn, nephew of the great George Cleghorn, was professor of anatomy and surgery, but he was in bad health, and his teaching work had largely devolved on his assistants, one of whom, William Hartigan, was to succeed him and to hold the chair till the end of 1812. Edward Hill and Whitley Stokes both held chairs in medicine in the school, but their lectures, both systematic and clinical, were delivered in Latin, in which language the examinations were also conducted; it was not until 1831 that the College of Physicians agreed to allow English to be used instead of Latin in the examination of candidates for their degrees. All students who wished to graduate in medicine in the University had first to graduate in arts.

It is not surprising that, with these restrictions, the classes in the School of Physic were small, and during the last fifteen years of the eighteenth century only seventy students entered the school, or less than an average of five each year. A great change took place in the second and third decades of the nineteenth century while James Macartney held the chair of anatomy, for in 1820 the number of students studying medicine in the School of Physic was 303. In the school of the College of Surgeons there was a similar expansion. In the session 1799-1800 the number studying in the school was sixty. In 1805 Abraham Colles became professor of anatomy, and in the session 1809–10 the class numbered 162; in the next year it numbered 185, and in the year after 204. Two such teachers as Macartney and Colles quickly made Dublin a favourite centre for medical students, who flocked to it from all parts of the United Kingdom. Their very number, however, seemed to be likely to prove the undoing of the schools, since it was difficult to find accommodation for them at the lectures and in the dissecting rooms, and as the choice of where he would go rested with the student, he would not attend where he thought he would not get good value.

Private Medical Schools

Teaching medical students had thus proved itself to be a profitable employment, and a good teacher in anatomy or surgery or medicine could be sure of a good income. Except for anatomy, a little chemistry, and some operative surgery on the dead subject, the teaching was entirely theoretical, and did not need any apparatus. A lecture room, a dissecting room, a small chemical laboratory, and a museum fulfilled all the requirements of a school of medicine. Medical men soon recognized how easy it was to open a school to which, if they were good teachers, they could attract a large and a paying class of students. In consequence we find that quite a large number of private schools were started in Dublin, sometimes in connexion with a hospital and sometimes purely as a private venture. For success it was essential that the certificates issued for attendance at these schools should be recognized by the licensing bodies as permitting students to

enter for the qualifying examinations, and by the Army authorities as qualifying for commissions in the Army Medical Service. This essential was, however, easily satisfied.

Crampton's and Kirby's Schools

One of the first of these schools to be opened was Crampton's School, which Philip Crampton opened in 1804 in the stable at the back of his house at 42, Dawson Street. In this school anatomy, physiology, and surgery were taught, and there quite a number of students entered. This school, which was closed in 1813, was intimately connected with the Meath Hospital, where Crampton was surgeon. In 1808 a school of anatomy was opened in connexion with Jervis Street Hospital; it lasted till 1833. In the following year, 1809, one of the most celebrated of the private schools, the Theatre of Anatomy, was opened by John Timothy Kirby and Alexander Read in Stephen's Street. In 1810 it was moved to 28, Peter Street, its name was changed to the Theatre of Anatomy and School of Surgery, and shortly after Kirby became sole owner. In order to satisfy the requirements of the Army authorities of the time Kirby found it necessary to establish a hospital in connexion with his school. He dedicated it to SS. Peter and Bridget, and maintained it out of the profits of the school. Kirby's enemies maintained that the hospital contained only one bed. Kirby's school attained a great reputation, especially with candidates for the Army Medical Service. It is related that at his lectures he used to fire a pistol at a body placed against the wall; when the body fell it was examined as a soldier would be on the field, and the bullet was located and extracted in the presence of the students. The entire performance was staged with great dramatic effect. A successful teacher —and Kirby was very successful—was always a serious rival to the School of Physic and to the College school. Such competition was usually overcome by inducing the successful teacher to join one or other of these schools, and at length, in 1832, Kirby was tempted to accept the chair of medicine in the College of Surgeons; his school in Peter Street was then closed, and his museum was transferred to the College.

In 1812 a school was started in connexion with the House of Industry Hospitals, at first called the School of Medicine Hardwicke Hospital, and shortly afterwards the Anatomical Theatre of the Richmond Hospital. In 1826 this school was housed in Channel Row, just opposite the Richmond Hospital, and was then known as the Richmond Hospital School. One of the best-known teachers in this school was Richard Carmichael, surgeon to the Richmond Hospital. In June, 1849, Carmichael was drowned while riding across the strand from Clontarf to Sutton; in his will he bequeathed a sum of £10,000 to the Richmond School, and in consequence of this generous bequest the name of the school was changed to the Carmichael College. The money did not become available till 1864, when new school premises were built in North Brunswick Street. In 1879 the school was again moved to premises especially built for it in Aungier Street, at the corner of Whitefriar Street, where it continued to attract large classes till the schools' amalgamation in 1889. Sir John William Moore was for a time professor of medicine in the Carmichael College.

Private schools were established also by A. Calonne in South Great George's Street (1815–33), by William Wallace in Moore Street (1820–37), on Lower Ormond Quay in connexion with St. Mary's Eye Hospital (1820–7), and in Eccles Street by Ephraim McDowel and Robert Adams (1822–6). In 1824 an important school was opened in a new building in Park Street, now Lincoln Place. This school, known as the Park Street School, was founded by James William Cusack and Samuel Wilmot (surgery), Robert James Graves and Henry Marsh (medicine), Samuel Athanasius Cusack (midwifery), James Apjohn (chemistry), and Arthur Jacob (anatomy and physiology). The Park Street School attracted a large number of pupils, but its professors were rapidly absorbed by both the School of Physic and the College of Surgeons. In 1849 Hugh Carlisle, who had become the chief proprietor of the school, was appointed professor of anatomy in the newly established Queen's College, Belfast, and Park Street School was closed, the museum being sold to Belfast for £250. The school building subsequently became the home of St. Mark's Ophthalmic Hospital, and now forms the chambers to the east side of the Lincoln Place gate of Trinity College.

In 1827 a school was opened in Bishop Street attached to the Anglesea Lying-in Hospital, the chief proprietor being George Thomas Hayden. In 1836 this school was closed, when Hayden moved to 28, Peter Street, the house which had been occupied by Kirby's school. At the time there was a private school next door in No. 27, owned by Andrew Ellis and John Edward Brennan; in order to distinguish his school, and to attach to it some of the traditional glory of Kirby, Hayden called his the Original School of Medicine. In 1849 Thomas Hawkesworth Ledwich became lecturer in anatomy in the school and one of the chief proprietors. Ledwich, who was very popular, died on September 29th, 1858, and in his memory, at the request of the students, the name was changed to the Ledwich School, a name which it retained until 1889, when, with the Carmichael College, it was united to the school of the Royal College of Surgeons. Three other important schools were opened in Dublin during the century. In 1837 the Apothecaries' Hall started a school in Cecilia Street. For a few years this school attracted a considerable number of pupils, but after Benjamin Alcock, the professor of anatomy and physiology, was appointed to the chair in Queen's College, Cork, the classes dwindled away; in 1854 the school was closed and the premises were sold to the Catholic University.

Catholic University School of Medicine

The Queen's Colleges of Cork, Galway, and Belfast, started by Sir Robert Peel in 1845, and five years later constituted the Queen's University of Ireland, had made no provision for medical education in Dublin. The whole idea of the Queen's University was repugnant to the Catholics of Ireland, and neither the University nor the Colleges received much support from Catholic students, either in arts or in medicine. This failure of the Queen's University to satisfy the requirements of the people led to the establishment by Pope Pius IX in the years 1851–4 of the Catholic University of Ireland, under the directorship of John Henry Newman. It was hoped that this university, although supported merely by voluntary contributions and without a charter, would form a great centre for the higher education of Catholic students of Ireland. In spite of the fact that in 1853 Newman had gathered a brilliant staff and was himself a most enthusiastic leader, the new university did not altogether realize the great hopes of its founders. It did, however, become the Alma Mater of two great schools which have made a lasting impression, both in arts and in medicine, on higher education in Ireland. From the Catholic University sprang University College, Dublin, and the Catholic University School of Medicine, both now joined as a constituent part of the National University of Ireland. The premises in Cecilia Street, purchased from the proprietors of the school of the Apothecaries' Hall, were refitted, and in 1855 they were opened as the home of the medical faculty of the Catholic University. From the first this school proved to be a great success, and even when the fortunes of the University were declining the medical school maintained its high reputation. The Royal University Act of 1879, through which the Royal University came into being in 1882, replacing the Queen's University, brought the arts department of the Catholic University—which had then been put under the management of the Order of the Society of Jesus and renamed University College—and the medical school in Cecilia Street into close relation with the new university as its chief feeders in Dublin. The closest co-operation was maintained between University College and the medical school, so that the students of the latter were taught the preliminary subjects of their first year in the arts classes of University College. In 1909, when the National University of Ireland came into being, University College and the Catholic University Medical School united to form the faculties of arts and medicine in one of its three constituent colleges.

Steevens' Hospital School

The last private medical school to be established in Dublin was the Steevens Hospital School, founded in 1857. Towards the middle of the eighteenth century the Irish Parliament had begun the practice of making money grants to certain hospitals in Dublin, and after 1800 the practice was continued by the Parliament of the United Kingdom. These grants were made to certain hospitals in quite an arbitrary manner, as the result of a petition made each year by the hospital to Parliament. The discrimination in making these grants led to much comment, and indeed it is difficult to see how the awards were justified. In 1842 the Lord Lieutenant appointed a commission to inquire into the condition of those hospitals to which grants were made, and, this being an Irish Commission, it reported strongly in favour of the continuance of the grants. In spite of this report, however, the House of Commons in 1851 resolved that a yearly reduction of 10 per cent. should be made in all the grants until they were finally extinguished, and for some years after such a reduction in the grants was made.

In 1855 the Lord Lieutenant appointed three commissioners to report on the hospitals which were receiving grants, and directed them to give special attention to two points: (1) whether any of these institutions could, with advantage, be closed, and (2) how any money which Parliament might recommend could be best spent to assist in the advancement of medical science. Of these three commissioners the active member seems to have been John Flint South, surgeon to St. Thomas's Hospital, London. In their report the commissioners stated that there were great difficulties in the way of closing any of the institutions, but they recommended certain modifications in the grants, and that a Board of Superintendence should be set up to inspect and to report on those institutions which received the money. In the case of Steevens' Hospital they recommended that the grant—then £1,080 a year—should be increased to £1,300 a year if a medical school were established in connexion with the hospital, and in an appendix to the report South submitted a detailed scheme for the establishment of such a school. The Board of the hospital accepted the proposals, and in 1857 the school was opened. During the first year seventy-four students were enrolled. At the time there were in Dublin five active medical schools—the School of Physic, the school of the College of Surgeons, the Carmichael College, the Ledwich School, and the school of the Catholic University—so that it is difficult to see why South should have wished to add to this number. Probably he was influenced by the success of the schools attached to the great hospitals of London, and, like many another Englishman before and since, he believed that all difficulties in Ireland could be solved by the adoption there of plans which had been found to suit in England. Steevens' Hospital School, however, proved to be a great success, and during the twenty-three years of its existence (1857-80) it had an average attendance during the winter sessions of sixty-nine and during the summer sessions of thirty-five students. Eventually failure of the Board of the hospital to work harmoniously with the school committee led, early in 1880, to the resignation of the professorial staff, and the Board closed the school at the end of the summer session of that year. In the last year of its existence there were in the winter session fifty-five and in the summer session thirty-seven students attending.

The College of Surgeons' School

Of the nineteen more or less complete schools of medicine which were functioning in Dublin between 1800 and 1860 five remained after 1880—the School of Physic, the school of the Royal College of Surgeons, the school of the Catholic University, and the two proprietary or private schools—the Carmichael College and the Ledwich School. The increase in practical teaching and in laboratory work, especially in the subjects of pathology and physiology, and the greater scarcity in the supply of subjects for dissection, made it more and more difficult to carry on at a profit a school which was supported merely by the fees of the students. Even the College of Surgeons felt this strain, and as early as 1882 the suggestion was put forward that the College should hand over its school to the professors, giving up all collegiate interest in it, and thus get free from all financial responsibility for it. This suggestion was bitterly opposed, and was finally abandoned. Two years later it was suggested that the College School should be amalgamated with the Carmichael and Ledwich Schools, but this proposal was also turned down. The financial difficulties in the way of such an amalgamation seemed to be almost insuperable owing to the vested interests of the proprietors and the professors in the two private schools which would have to be purchased. The matter, however, was not allowed to rest, and on May 21st, 1888, the fellows of the Royal College of Surgeons adopted the following resolution:

> "That having regard to the interests of medical education in Dublin it is desirable to diminish, as far as possible, the number of private schools; and that with a view to carrying out this principle it be an earnest recommendation to the Council to take such steps as may be necessary to effect on equitable terms an amalgamation of the existing private schools with the school of the College of Surgeons."

The discussions which the carrying out of this resolution involved continued over a year, but at last, on September 14th, 1889, the Council of the College finally approved the scheme of amalgamation, and on November 1st, 1889, the three schools started work under one management. The cost was great and for some time it proved a source of considerable financial embarrassment to the College.

The nineteenth century had opened with two medical schools in Dublin, the School of Physic and the school of the Royal College of Surgeons, neither of which was in a very efficient state; it closed with these two schools still in existence but much more efficient, and, in addition, in Cecilia Street, the active and flourishing school of the Catholic University. Looking back over the century one can see a long line of highly qualified and gifted teachers, teachers who attracted large numbers of students, and who gave to those students an individual attention and a practical education which has enabled Irish medical men to win for themselves high places in medical circles throughout the world. At the same time these teachers enriched the science which they taught with many original observations of permanent value. The education given was eminently suitable for the ordinary student; it fitted him admirably for general practice, but it did not afford equal facilities to the brilliant student who wished to become a specialist or a research worker. The education had the merit of being cheap, sound, and practical—qualities very necessary at all times. The modern tendency is different. In order to suit the new conditions which have arisen concentration in larger and more expensively equipped schools has seemed to be necessary, and has proved to be effective. Many believe that a similar concentration in a few large hospitals will be necessary also before clinical teaching in Dublin comes to its full fruition. There is no doubt that the present time, when large sums of money are being made available for the support of the voluntary hospitals, is a suitable time for considering whether or not this change should be made. If it is right that the Dublin system of hospital provision for the treatment of the sick and for teaching purposes should be changed, now is the time to make that change. If the money now being collected is spent, as it is proposed to spend it, in the reconstruction and the re-equipment of the existing hospitals, the opportunity for making such a change will have been indefinitely postponed.

The Princess Royal recently paid an informal visit to the Institute of Ray Therapy and Electro-Therapy in Camden Road, N.W., of which she is Patroness, and was escorted over the building by the hon. medical director, Dr. William Beaumont, and the hon. secretary, Miss Winifred Beaton (Mrs. Beaumont). Her Royal Highness took much interest in the various types of apparatus demonstrated to her in the treatment rooms during her one and a half hours' visit, and asked many questions.

British Medical Journal

SATURDAY, JULY 15th, 1933

ROAD TRAFFIC SIGNALS

The Departmental Committee of the Ministry of Transport on road traffic signs, appointed in December, 1931, has now reported.[1] Since the purpose of traffic signs is safety on the roads and the prevention of accidents, the report is of special interest to medical practitioners, both because they are users of the roads at all hours and in all weathers and because accidents on the roads make such heavy demands upon their time and skill. The personnel of the committee, to the number of twenty-seven, would appear to be fairly representative of every class of road user, save only the medical practitioner, and of all road-controlling interests. It is a lengthy document and expensively illustrated. The members of the committee were able to furnish most of the information needed for their work ; nevertheless, some evidence was received from other bodies—for example, the British Medical Association, through Mr. Bishop Harman, its representative for the purpose. The report enters into considerable detail. The illustrated plans of road junctions, one-way carriage roads, parking places, with the layout of white lines and the distribution of signal-light points in relation to the paths of movement of the traffic, suggest the possibility of the development of a fine winter evening game for the children: one that would surely keep them busy, amused, and perhaps out of mischief. Apart from that, it contains nothing of novelty. A body of practice has been growing up in this country and abroad, and the report is more or less in the nature of a " consolidating act." It seeks to bring into something like order and coherence the present-day rule-of-thumb methods.

The committee holds that traffic signs must fulfil certain requirements: (i) They must be so designed and sited as to attract the attention of the persons for whom they are intended. (ii) Their significance must be clear at a glance. (iii) They must be so placed that sufficient time is allowed for the persons for whom they are intended to adapt their course of action to the indication given. (iv) They must, so far as possible, be erected upon a uniform system, and the use of unnecessary signs should be avoided. The International Convention of 1926 pledged various countries to introduce warning signs, but there was no general agreement on the nature of these signs. On the Continent of Europe the generally adopted warning sign is a triangular plate with the appropriate symbol inside the triangle. In this country hollow triangles with a separate symbol and letters are in favour. In the United States of America there is a strong tendency to discontinue the use of symbols and to rely solely on lettering. A wise warning is given on the misuse of warning signals. If drivers are to respect them they should be significant.

" There is a not unnatural tendency on the part of some highway authorities to exaggerate the dangerous character of particular places in their areas, and for that reason to erect special danger signals. No doubt it is possible to induce drivers to take extreme care at a particular spot by the use of a sufficiently intimidating array of signs, but such over-emphasis cannot fail to weaken the effect of standard warning signs and on the whole to cause more accidents than it prevents. A similar result must follow the use of warning signs at places where they are not justified. An accident which is due merely to bad driving affords no evidence of the need for a warning sign."

Another wise view is that taken regarding mandatory notices. Certain signs, such as " Turn left," " One way only," though apparently mandatory, are essentially directions and for guidance. Others are in a different category. The significance of the red signal with the word " STOP " fused in the lens is unmistakably mandatory and peremptory. The committee recommends that the direction on the green light of the word " GO " should be removed, because the display of the green light merely permits the driver to proceed if he can do so with safety and should not be regarded as an instruction to proceed on the assumption that the road is clear ; and again, it must be clearly understood that the green signal does not imply a right to proceed without taking ordinary precautions. In the committee's opinion no wording of any kind—except the word " STOP " on the red lens—should be used on signals, either on the lenses or elsewhere, with the exception of the words " CROSS NOW " or " DON'T CROSS " on the pedestrian-operated signals. In the matter of road junctions the committee did not act up to this wise principle of throwing the onus of judgement upon the driver. It reports that in some cases it may be desirable to require drivers to stop before entering the main (or " major ") road, and for this purpose there has been designed a specific sign, a red triangle within a red circle above a plate with the word " HALT." Many members of the committee, including the chairman, dissent from this view, and hold that the use of this sign would be prejudicial to the present and recommended system of warning signals and be a retrograde step. It departs from the principle of informing the driver of the character of the danger ahead and leaving him to adjust his driving accordingly.

The committee is definitely of opinion that light signals are more economical than police for controlling road junctions and that these can alternately stop and release dense streams of traffic at a more rapid rate than a constable could possibly maintain. The evidence given by the British Medical Association is accorded considerable space. It dealt with the risks of the confusion of colour signals and suggested that the red and green lights should be also distinguished by shape—a horizontal bar of red light and a vertical bar of green light. The committee considers that (despite the experience of the railways and shipping) there is a lack of evidence that colour-blind drivers do in fact find difficulty in interpreting light signals either by day or by night. It was clear, in the discussion of the matter with the committee, that the fact that so many cities and countries had already adopted the circular bull's

[1] Report of the Departmental Committee on Traffic Signs. London: H.M. Stationery Office. 1933. (3s. net.)

eyes weighted the scales against any change unless under strong pressure. The committee, however, recommends that signal heads should be banded white and black so as to indicate the position of the lights. It was also pointed out to the committee that risk arose from the confusion of other street lights, illuminated advertisement signs, and even the chemist's red bull's eye, with the signal lights, but no note is made on this point, though the reverse is provided for in the direction that care should be taken when the installation of light signals is under consideration that there is no possibility of confusing these either with navigation lights for the guidance of shipping or persons in charge of craft on inland waterways, or with railway signals. Special shields may here and there be necessary to ensure that light signals are not seen by persons other than those for whom they are intended. It is evident from comments made in the lay press that more will need to be done with regard to the excessive multiplication of illuminated advertisement signs. These may soon become so numerous as to destroy each other's effectiveness ; then, perhaps, traders will wonder if the cost is worth while. The *Times* has called attention to another point omitted from the report: the difficulty of reading lighted signals in broad sunlight.

White lines are considered with much care. The committee concludes that they are of much utility, but it adds that they should be confined to places at which it is clear that they will reduce danger or be of material assistance to traffic. An overuse of white lines in one locality will not only tend to reduce their effectiveness generally, but may give an unwarranted sense of security to drivers in adjoining districts where more restraint in their use has been exercised. The marking of the roadway should be strictly limited to directions ; an order such as " STOP " should never be on the carriageway. The committee has been commendably expeditious in the issue of its report, and the carrying into effect of its recommendations should secure such uniformity in traffic signs as will tend to the better order and safety of the King's Highway.

CANCER RESEARCH

Ten years ago the British Empire Cancer Campaign was launched, its primary objective being the discovery of the cause and cure of the disease. It was not expected, of course, that such an ambitious programme would be realized immediately: the difficulties and complexities of the subject were too well known to the experienced doctors and scientists who constituted the organizing committees. What they set out to do was to build up an organization which would encourage and co-ordinate cancer research throughout the British Empire. How far they have succeeded in this will be seen from the review of the activities of the organization furnished by the tenth annual report of the Campaign.[1] The first thing to do with an annual report is to run quickly through its pages and notice its contents and arrangement. This treatment of the present volume at once reveals the amazing complexity of the cancer problem. One worker is at it with the chemistry of dibenzanthracene, another is watching successive generations of rats with the contemplative eye of Mendel observing his peas, another is trying the effect of anti-cancer serum on human patients, others are working with radium and *x* rays, others searching for treasure in the dusty files of hospital follow-up systems.

Almost every page of the two hundred in the tenth annual report refers to some new form of activity directed to the advancement of our knowledge of the cause and cure of cancer. There must be many minor pieces of research in cancer which have only been made possible by the support and encouragement of the Cancer Campaign. The first glance through the report, then, is like a peep through the window of a factory. We see many different types of movement and no apparent unifying purpose. This, however, at once becomes obvious if we look more closely at any one of these separate operations. A good one to start with is the work on cancer-producing chemicals. This began with the discovery some sixteen years ago that mice develop cancer when the skin of the back is painted with crude tar. It led to a search for other carcinogenic substances, and concentrated attention on what particular constituent of crude tar could be responsible for this fatal change in the character of cell growth. It seems that the particular chemical constituent of tar responsible is 1:2-benzpyrene, seven grams of which can be extracted from two tons of gas-works pitch. Mice develop cancer more rapidly and more regularly after the application of this chemical in a pure state than after painting with crude tar or any of its other known derivatives. Meanwhile another substance, dibenzanthracene, has been found to have equally powerful carcinogenic properties. This is a synthetic chemical not obtained from tar. It causes carcinoma or sarcoma in several different species of animals besides mice, when applied locally or injected. It is interesting to notice that this substance has a similar molecular structure to benzpyrene, which gives tar its cancer-producing properties. One immediate object of research is the attempt to trace a relationship between human cancer and previous exposure to some such carcinogenic agent. It is possible, for instance, that minute quantities of such chemical substances may be present in materials which are used by human beings for food or clothing, or that similar substances may be formed in our bodies as by-products of activities. This is obviously an encouraging field for research.

Anti-cancer serum which had already proved successful in destroying tumours in mice has now been applied to inoperable human cases. The results are as yet too few for conclusions to be drawn, but they have been sufficiently encouraging to produce " temporary benefit in several of the cases," and to indicate a continuance of research on these lines. A good deal of new work is being done to improve existing methods of treating cancer. The disease presents a different problem in every organ of the body, and whether the treatment be surgical or medical or by radiations, there

[1] British Empire Cancer Campaign, 12, Grosvenor Crescent, S.W.1.

are particular difficulties to be overcome in each different type of tumour. The classification and grading of tumours, the manner of spread of different types of malignant disease, the careful recording of all cases of cancer which have been treated, including the following up of such cases to ascertain their subsequent history, are all very important branches of cancer research. This may appear an unromantic field to till, but it is sure of a useful, if unspectacular, harvest. One thought in conclusion before the report for 1933 is placed on the shelves beside its predecessors. The writers referred to in this document are only the agents of a much larger group of supporters who have given their time or thought or material help to create and further this great organization for the discovery of the cause and prevention of cancer. The success of the Campaign depends on continued support. This was pointed out very cogently by the Duke of York when presiding over the annual general meeting on July 10th. He suggested that in future years an appeal might be made throughout the British Empire on Empire Day to aid the work of the Campaign at home and over-seas. "The final victory over cancer would indeed be a matter for universal rejoicing, and I therefore submit that that day be considered in connexion with our appeal activities."

AETIOLOGY OF INFLUENZA

In recent years the views on the aetiology of influenza have undergone a change. The days have passed when the bacillus isolated by Pfeiffer—known now as *Haemophilus influenzae*—held first place as causal agent, and most people have come to believe that a filterable virus is responsible. There has been some experimental evidence to support this view. Nicolle and Lebailly (1918) and Yamanouchi, Sakakami, and Iwashima (1919) have reported the successful transmission of influenza to human volunteers by means of filtered material; in fact, the Japanese experiments succeeded with a regularity that investigators of biological problems hope for but rarely encounter. Then there were the claims by Olitsky and Gates (1921) and Gordon (1922) to have cultivated filter-passing organisms from cases of influenza, but in neither case were the conditions of cultivation those which have since been found necessary for so many filterable viruses, and the evidence in support of *B. pneumosintes* (Olitsky and Gates) as the causal organism of influenza is not convincing. The last few years have passed without further light being thrown on the problem of the causation of influenza, and without doubt this has been due to the lack of a suitable experimental animal. Man alone seemed to be available for this purpose, and for obvious reasons there has been a reluctance to make use of human volunteers.

Just when the possibility of any further advance seemed rather remote has come the announcement[1] that three investigators at the National Institute for Medical Research, Dr. Wilson Smith, Dr. C. H. Andrewes, and Dr. P. P. Laidlaw, have succeeded in transmitting influenza to ferrets. The whole aspect of the situation has been transformed. Profiting by the recent epidemic to reinvestigate the whole problem, these workers tried to infect a variety of laboratory animals. At first they met with the usual negative results, but, undaunted by this lack of success, they pursued their quest and were rewarded in the end by finding that the ferret was susceptible. Ferrets inoculated by nasal instillation with the filtered throat washings of early cases of influenza went down after a two-day incubation period with fever, nasal discharge, and obvious signs of illness. Not only could the condition be passed from ferret to ferret by filtered suspensions of nasal mucosa, but mere contact sufficed for the transmission of the disease. This entailed the removal of the investigation to the Institute's Farm Laboratories at Mill Hill, where all the machinery of rigid isolation elaborated for the work on distemper could be made use of. Here the work was continued, and Drs. Smith, Andrewes, and Laidlaw have established that a filterable agent is present in the throats of early cases of influenza which is capable of producing disease in ferrets. The material from five out of eight human cases proved virulent; the throat washings from four normal individuals and one with a cold gave negative results. Ferrets which had recovered from an attack proved resistant to reinfection; their serum possessed neutralizing properties for the virus; and, what was more important, the serum from human influenza convalescents, in a high percentage of cases at any rate, was similarly endowed with neutralizing power. This work leaves little doubt that influenza has been transmitted to ferrets and that the prime cause of the disease is a filterable virus.

A short while ago, at the time of an epidemic of influenza in America, Shope (1931) isolated a filterable virus from a disease in pigs known as swine influenza. This virus by itself did not reproduce the natural disease; it gave rise merely to a mild febrile disturbance with little or no obvious symptoms. But when the virus was combined with an influenza bacillus—*Haemophilus influenzae suis*—which was constantly present in the natural disease, the complete clinical picture of swine influenza was obtained. The partnership of these two factors, virus and bacillus, was essential for the production of the disease; but, as Shope showed, it was the virus which was the primary causal agent, for the influenza bacillus alone was quite avirulent. The Hampstead workers have been able to compare Shope's virus with their human strain, and find that they are closely related antigenically. Unlike its behaviour in the pig, Shope's virus produces the complete disease picture in the ferret without the collaboration of the influenza bacillus; the same is true of the human influenza virus. Whether human influenza requires for its production the close partnership between the filterable virus and Pfeiffer's bacillus which pertains in the case of swine influenza only further work will show. Many other problems present themselves for solution, and the medical profession will anxiously await the next advances which this brilliant piece of work has made possible.

[1] *Lancet*, 1933, ii, 66.

THE HUNTERIAN MUSEUM

From the preliminary statement in the annual report on the museum of the Royal College of Surgeons of England it appears that since last October the Conservator, Sir Arthur Keith, has been on leave of absence owing to illness. Happily his health is now in great measure restored, but continued residence in London has been deemed inadvisable, and he has transferred his activities to Downe, although, doubtless, he will take a continued interest in the Hunterian Museum, which had the advantage of his leadership for so many years. Fortunately, a popular and able acting Conservator has been found in Mr. R. H. Burne, the Curator of the Physiological Department, who presents the report for the past year. The museum has also suffered a heavy loss in the death of Mr. C. F. Beadles, the Pathological Curator, whose connexion with the museum dates back to the year 1909, and whose name will always be associated with the War Museum. The report is divided into two parts, the first giving details of the work of the several departments and brief descriptions of the additions made to the museum collections, the second consisting of the reports of the research workers in the laboratories, presented by Dr. G. Scott Williamson. The additions to the museum, nearly four hundred in number, have been placed in Room I, where they will remain for the inspection of visitors until August 4th. They illustrate well the varied activities and interests of the museum, including the subjects of normal and pathological anatomy, both human and comparative, physiology, anthropology, historical pathology, surgical instruments and appliances, and forensic medicine. Among the pathological specimens may be mentioned several illustrating favourable results after excision of carcinoma of the larynx, a remarkable specimen of cirsoid aneurysm of the coronary vessels of the heart, a valuable series illustrating diseases of the gall-bladder, and specimens of endometritis polyposa and "tarry cyst" of the ovary. Conspicuous in the physiological section are the beautiful preparations and injections made by Mr. Burne, particularly those illustrating the ossification of the skeleton in the embryo. Of other additions to the series of human osteology the most important are nine casts of the skeletal remains of early Pleistocene man from the Peking caves. The report of Miss Tildesley, Curator of the Department of Human Osteology, gives evidence of the great value of the anthropological collection to those engaged in biometric inquiry, and of the numerous demands made on her department for reports on excavated specimens from all quarters. The additions to the odontological department consist mainly of specimens illustrating the comparative anatomy and pathology of the subject. They occupy five pages of the report, and their number serves in some degree as a measure of Sir Frank Colyer's determination to bring his collection to perfection; it must now be the finest odontological museum in the world. A striking addition to the museum, placed in Mr. C. J. Thompson's Historical Section, will arouse the interest, qualified perhaps with some reserve, of students of English history. It consists of two bones reputed to be parts of the skeleton of Queen Berengaria of Navarre, wife of King Richard Cœur de Lion. A large amount of work has been done during the year in the laboratories of the College. Dr. Scott Williamson and Dr. Innes Pearse have continued their studies on the relationship between the pituitary and thyroid functions; Mr. H. J. Burrows has already recorded some of the results of experiments on tissue culture in his Hunterian Lecture, and has other papers ready for publication on that subject; Mr. J. H. Thompson has continued his interesting experiments on the growth-retarding factor of parathyroid extract; Mr. Laurence O'Shaughnessy has already embodied the results of his work in his Hunterian Lecture on the surgery of the oesophagus, and has also been working on various aspects of neurectomy and on the surgery of the thoracic organs; Sir Charles Ballance has been engaged in the study of the Rolandic cortex and the cervical sympathetic, and Mr. Winsbury White on the lymphatic pathways from the genitals and lower urinary tract towards the kidneys, the results of which were set out in his Hunterian Lecture delivered last February.

ASTHMA AND AIR FILTRATION

It is becoming more and more recognized by the clinician that true spasmodic asthma must be sharply differentiated from the crippled lung type as well in treatment as in pathogenesis. The victim of the former, as Bray[1] points out, inherits his liability to anaphylactic phenomena as a Mendelian dominant characteristic; he is the subject of skin affections and exudations of various mucous membranes which show, with the blood, a high percentage of eosinophils. Conjecture is still rife as to whether the initial change is or is not an urticaria of the bronchial mucosa leading to the secondary spasm and ultimate thickening of the muscle of the "respiratory bronchiole" with which the pathologist is familiar. The secondary spasm and thickening in the second type may arise from any lung damage, and appears (Graham) to be related to stenotic processes in the larger or smaller bronchi. It is well seen in the "asthma" of pulmonary tuberculosis, in bronchiectasis, and in the pneumoconioses. The exciting cause of an attack is related to bacterial infection of the upper respiratory tract and not to foreign protein *per se*. Interesting confirmation of this distinction occurs in two articles dealing with the treatment of hay fever and pollen asthma by air filtration by Gay[2] of Baltimore and Nelson[3] and his fellow-workers in Chicago. The relief of the current asthmatic attack of the pollen type with the patient in a chamber of filtered air is as striking as the complete failure to improve the "control" cases of bacterial asthmatic spasm. Machines admitting of adjustment of temperature and humidity were attached to one or two hospital wards containing from four to eight beds. Pollen counts on greased slides placed in the ward and adjoining passages before and after filtration showed differences from as much as 600 grains per cubic yard for the outdoor "settling" count to under 10 grains in the moving air of the large ward. The efficiency of the filter (preferably 4-ply cellulose) depended directly upon frequent changing; other disturbing factors are detailed. The conclusions reached were, in effect, that the hay fever patients were immediately benefited. The pollen asthmatics, if confined long enough (a factor varying from twenty-four hours to

[1] Bray, George W.: *Arch. Dis. in Child.*, 1930, v, 237.
[2] Gay, Leslie N.: *Journ. Amer. Med. Assoc.*, 1933, xviii, 1382.
[3] Nelson, Tell, Rappaport, B. Z., and Welker, W. H.: Ibid., 1933, xviii, 1385.

ten days), were in time relieved of their subjective symptoms, although after forty-eight hours the objective signs of asthma had disappeared in only five. The tolerance of patients to excursions into the outside atmosphere varied from one-half to twelve hours in the twenty-four, and might differ for the same patient on successive days, though it was chiefly determined by the severity of the asthma. Confinement for a time in filtered air before the seasonal onset of the asthma will not prevent its usual occurrence. When patients were discharged from the filtered chamber the asthma invariably returned with equal severity. For economic reasons, then, only those patients who could afford to install apparatus in their own homes are likely to derive permanent benefit. For hospitals, such a room might be of use for serious cases of status asthmaticus, or for a short period in which it was intended to carry out some operative procedure. Confirmation also emerged of the general feeling that weather conditions and other factors besides pollen concentration have a certain effect in precipitating an attack in pollen-sensitive patients: thus, cooling the filtered air often aggravated the asthma because of an increase in relative humidity.

A CHARLATAN EXAMINED

The widespread activities of charlatans, quacks, latter-day sorcerers, and the like on the Continent has led to the publication by an International Committee in Brussels of a review[1] which purports to concentrate attention on these practices in general, on any case which comes before the Courts, and on any scientific examination of claims made by such people. It may be doubted, however, if any practical purpose is served by such a publication. The medical man has no means of combating the sale of patent medicines and nostrums other than by publishing their composition or action (if any), and the influence of the irregular practitioner is even more difficult to deal with, as it may occasionally be beneficial—as in those cases of imagined disease or neurosis, in which sympathetic handling by a strong personality is indicated. Patients of this kind easily fall victims to quacks when medical treatment applied on orthodox lines fails, for it is in the nature of many men and women to show preference for the mysterious and incomprehensible. Great prominence is given in the review to a clear demonstration recently undertaken by Bessemans to prove that the diagnoses of a *sourcier*, who used the familiar handwriting-planchette-pendulum nonsense, bore no relation to the conditions from which the patients were suffering, and were, in fact, complete rubbish. A side-by-side comparison of the medical and quack diagnosis, in ten cases, makes amusing reading. A sample is given below, the sorcerer's comments appearing in parentheses: Case 1—Healing fracture of right elbow (heart and nerve disease) ; Case 2—Fracture of right clavicle (disease of the liver) ; Case 5—Varicose ulcer of left leg (ear disease) ; Case 6—Impetigo (" kidneys and bladder ") ; Case 7—Eczema (disease of intestines) ; Case 10—Anthrax of right shoulder (eye disease, intestinal inflammation, pain in left leg under the knee, " stomach, pyloric region "). It is improbable that such a demonstration will exert any influence on the simple-minded patients of the quack, but that seems all the more reason for the law to prohibit his practices under severe penalties.

[1] *Revue Internationale de la Lutte contre le Charlatanisme*. May, 1933. Brussels: 54, Boulevard de Waterloo.

MAN AND MACHINE

A most important theme, and a very effective presentation of it, will be found in a pamphlet by Dr. L. P. Lockhart, entitled " Mind and the Machine." It is a reprint of a lecture recently delivered under the auspices of the League of Industry.[1] The theme is the machine, not " as the destroyer of the finer and more individualistic aspects of human life," but " as an aid to fuller human development," and the need and difficulty of making appropriate and sufficiently rapid mental adjustments to this end. To plan and control material progress is not enough in itself to ensure human advancement. It is necessary to consider and arrange every aspect of life, and not one side of it or a mere selection only. " We must not only plan and organize our material advantages, but we must also apply scientific investigation to the vital question of mental adaptation." To remember that man is governed quite as much by instinct and emotion as by intelligence and reason is essential for this purpose, and the large extent to which suggestion replaces reasoned argument must never be forgotten. Incidentally, we observe that Dr. Lockhart defines " suggestion " as " a means of inculcating ideas merely by the manner of stating them without offering any logical support for the conviction enjoined." Two points are clearly brought out and strongly enforced: the need for biological knowledge, and especially for a biological outlook, for every citizen, particularly for those who hold any post of responsibility in government or in industry ; and the need for developing outside the bread-winning function other satisfactions which will not only maintain a balanced mental life, but may also help to consume some of the fruits of machine activity in mass production.

" Once we had psychological satisfaction in the midst of material scarcity ; now the problem is completely inverted . . . If employment to-day cannot give to man the full satisfaction that came to the older craftsman and to the small independent trader then merely to offer work is not to complete the mental life of man but rather to leave it still unsatisfied. . . . In all forms of education we should therefore strive, not indeed to turn out masses of half-baked technical biologists, but we should give to every boy and girl that degree of understanding of living processes as shall enable them to appreciate the evidence on vital problems as it comes to them. To say that biology regarded from this standpoint is not ' cultural ' is mere pedantry, for what can be of greater cultural value than to have insight into living phenomena without which all history, all literature, and in fact the whole of life is meaningless? "

Dr. Lockhart has on previous occasions, at Annual Meetings of the British Medical Association and elsewhere, made valuable pronouncements on the psychological aspect of problems of social welfare and industry.

MEDICAL EDUCATION: A CANADIAN STUDENT'S VIEWS

A series of articles has appeared in the *Canadian Medical Association Journal* during this year on the subject of medical education, and in the June number is one by a medical student, Mr. A. C. Corcoran, B.A. Mr. Corcoran remarks that a medical student's criticism is apt to be hasty and directed to details, but his article is free from both of these alleged tendencies, and is a considered statement written after conference

[1] League of Industry, St. Stephen's House, Westminster, S.W.1, (2d. post free.)

with contemporaries in his own school of Montreal and elsewhere. The article contains criticism and suggestion. The criticism may be summarized as follows: the view is expressed that the prospective medical student's secondary education is "not good enough"; that standardization by the various universities of the teaching in chemistry, physics, and biology is needed; that there is not always the necessary continuity between the teaching of the pre-clinical period and the clinical subjects; that clinical education should be based upon learning how a patient should be approached and his symptoms and signs of disease recognized, rather than upon efforts at hasty diagnosis. This summary by no means exhausts the points raised in the article, which is well worth reading by all concerned. It adds to the evidence already to hand that medical training is in need of review *as a whole*; it should be given to the student as a whole—it is too often presented to him as a collection of disconnected parts, and the lack of connexion confuses and wearies him. To overcome the latter tendency in any particular school authority is required, and that is not always forthcoming. The authority needed must be fully alive to the purpose and end of training, and at the same time accept the fact that much instruction which has no direct and obvious application to practice is needed if the student is to be capable of forming judgements which are his own. It is only by the teachers of a school that the necessary co-ordination can be achieved—no external authority can achieve it; but external authority, if it devoted sufficient time and care to the framing of recommendations might gain the confidence of the schools and influence opinion in the right direction: unless it were successful in earning the confidence of the schools it would achieve nothing. The sequence in a curriculum should be such that the student is aware of it himself; to anyone who will take the trouble to scrutinize a series of examination papers the want of ordered sequence will be apparent in many instances; the questions of an examination paper are a fair index of the teaching. One matter to which Mr. Corcoran refers, and which is sometimes forgotten when graduation has become a distant memory, is that the mental capacity of the medical student is subject to the same limitations as that of the ordinary human being, and that he should be given not only facts but time and even leisure to digest them. A temperate and reasoned expression of opinion such as Mr. Corcoran has written is welcome; it contrasts favourably with some other critical articles on the same subject published lately.

The inaugural ceremony in connexion with the third International Paediatric Congress will take place on Thursday, July 20th, in the Great Hall of B.M.A. House, Tavistock Square, W.C., at 10 a.m. The Duke of York, accompanied by the Duchess, has consented to open the congress and make a speech of welcome. In view of the attendance of Their Royal Highnesses members of the congress are asked to be in their places not later than 9.55 a.m.

In our correspondence columns this week appears an influentially signed letter from Bristol announcing a proposed memorial to the late Dr. Carey Coombs, which we are sure will meet with a sympathetic response in places far beyond his immediate field of work.

MEDICAL PROBLEMS OF CONTRACEPTION

CONFERENCE IN LONDON

A medical conference on contraception was held at British Medical Association House on Saturday, July 8th, under the joint auspices of the National Birth Control Association and the Birth Control Investigation Committee. The discussions, each occupying one session, were concerned with recent research on temporary hormonic sterilization, information on birth control by public health authorities, chemical spermicides, and birth control instruction in general practice.

TEMPORARY HORMONIC STERILIZATION

Professor JULIAN HUXLEY, who presided at this session, said that in the view of the Birth Control Investigation Committee temporary hormonic sterilization held great promise as a method of birth control. The present mechanical methods were near the limit of their efficiency, and even chemical methods, though capable of considerable improvement, had and would always have certain inherent disadvantages. If, as was perfectly possible, a satisfactory means of inducing temporary hormonic sterility could be found which would be operative over a definite period, say for one menstrual cycle as a result of a single injection, many practical and aesthetic objections to contraception would be surmounted. Indeed, we should look back on our present methods as the motorist looked back on the bicycle age, or as the modern book trade might look back on clay tablets.

Mr. C. W. BELLERBY said that the practical application of hormonic methods was contingent on the discovery of processes for synthesizing the substances concerned or on finding cheap methods of preparing them from existing sources of supply. The main obstacles to progress along these lines had been, first, the complete side-tracking of work on the anterior pituitary hormones by the discovery in the urine of pregnancy of substances with apparently identical properties; and, secondly, the assumption by most workers on the subject that these substances were actually elaborated by the anterior pituitary lobe. No evidence had in fact been produced in support of this contention, which accordingly invalidated work on pregnancy urine which purported to throw light on the chemical and physiological properties of anterior pituitary hormones. The differences that had been found between crystalline oestrin prepared from urine and oestrin extracted from ovary served further to underline this distinction. It was now generally accepted that the periodic alternation of fertility and infertility in animals was controlled by the anterior lobe, and it therefore seemed likely that complete control over the duration of the fertility or infertility period might be obtained by isolating and administering the factor or factors concerned. Work had been held up, however, by lack of a suitable test animal; but the speaker, using the African clawed toad, had devised a reliable quantitative method of assaying the hormone and had progressed considerably in his studies on the chemistry of the anterior lobe. He had found it possible, moreover, to prepare extracts of the gland having a far greater activity than any hitherto reported. He had found no support for the view that more than one pituitary hormone was concerned in the regulation of the ovarian cycle. This work had been carried out under grant from the Birth Control Investigation Committee.

An informal discussion followed, in which Dr. C. P. BLACKER, Dr. CECIL VOGE, and Professor HUXLEY took part.

CONTRACEPTION AND PUBLIC HEALTH SERVICES

In her introductory remarks on this subject the chairman, Dr. HELENA WRIGHT, reminded the conference that under the Ministry of Health Act, 1918, local authorities wishing to give birth control advice could do so on gynaecological grounds only, and even then only in the case of pregnant married women. But the Act was by

no means uniformly interpreted, and in different areas there existed vastly different conceptions of the meaning that could justly be applied to the term "medical grounds."

Mrs. FRANCIS IVENS-KNOWLES, surgeon in charge of the Women's Clinic, Walthamstow, said that this clinic had been set up under Section 131 of the Public Health Act to conduct ante-natal and post-natal consultations, deal with gynaecological conditions, and advise sick persons on contraceptive methods. In this last function it was limited exclusively to women who attended for advice or treatment in connexion with gynaecological disorders, or for whom pregnancy was undesirable on strictly medical grounds. During the year 1932 the patients needing contraceptive advice formed 17 per cent. of the total attendance. In some of these, dread of another pregnancy had set up a "fear neurosis," which had been intensified by the use of such birth control methods as coitus interruptus, or by inability to sleep through the noise made by ailing and nervous children. Others were suffering from debility brought about by frequent child-bearing, this condition sometimes being intensified by the anaemia of lactation, the presence of prolapse from untreated perineal tears, and even by too early a return to the routine of household work. For many such women the Mensinga type of pessary was useless without preliminary operation. The speaker drew attention to the dangers that were associated with the use of septic marine sponges; there were disadvantages, too, in certain foam preparations, for these in some cases produced local pain and irritation. Discussing the morbidity due to excessive child-bearing, Mrs. Ivens-Knowles said that routine examinations conducted at the clinic revealed the presence in multiparous women of cervical lacerations which might be the precursors of malignant disease. In 160 cases of carcinoma of the cervix which had been under her care the average fertility rate of the patients worked out at 6.5, twenty-three of the patients having had more than twelve pregnancies, and one patient twenty pregnancies. In conclusion, she suggested that the establishment of women's clinics in populous districts would do much to alleviate the sufferings of overburdened mothers, and enable them to regain their health and vitality. Such clinics should be organized in close co-operation with the practitioners of the district, be staffed by experienced gynaecologists and obstetricians, and be connected with fully equipped hospitals.

Dr. A. G. M. SEVERN, medical officer of health, Pontypridd, gave an account of the establishment of the first birth control clinic in South Wales and the experience gained since its inception. In this area large families were common, and for many years the maternal mortality had been well above the average for the rest of the Kingdom. For these reasons a voluntary organization had established a birth control clinic in Pontypridd in 1930, and the local authorities had permitted it to use the premises of the ante-natal clinic for its sessions on condition that it bore all capital and maintenance expenses. This clinic was not bound by any of the restrictions imposed by the Ministry of Health, and gave advice on economic as well as on health grounds. The following year, however, the local authority, having considered the Ministry's memorandum, decided to take over the clinic as part of its maternity and child welfare service, with the result that the conditions imposed by Circular 153 became operative and patients were no longer accepted on other than health grounds. The example of Pontypridd had led to a demand for similar clinics in the area, and five local authorities in South Wales had now established clinics of their own. Turning to a consideration of the medical conditions on account of which the women had been referred to the clinic, Dr. Severn gave an analysis of the last 100 case cards, which showed that eighteen were suffering from debility brought about by excessive child-bearing, fourteen were tuberculous, thirteen suffering from renal disease, ten from anaemia, nine each from epilepsy and heart disease, five from pelvic deformity, and four from debility due to miscarriage. Previous abnormal labour, severe neurasthenia, hip disease, asthma, paralysis, goitre, and uterine prolapse accounted for the rest. In a few cases early disease of the uterus had been discovered and been referred for treatment to the Cardiff Royal Infirmary. It was noteworthy that several women had attended for advice on sterility. An examination of the records showed that the clinic was not reaching the most ignorant and physically unfit members of society: the majority of the women who came for advice belonged to superior working-class stocks. It seemed as though there was a need for even simpler contraceptive methods than those recommended by the clinics, and perhaps in some cases nothing short of sterilization would be effective. Dr. Severn suggested that the results of the Pontypridd experiment demonstrated that the best way of starting birth control clinics in areas where these were likely to meet with opposition was for voluntary organizations to make a start and then convince the local authorities that they met a genuine demand. Town councils were disinclined to experiment with public money, but they could hardly fail to appreciate the value of a going concern.

Dr. LILIAS JEFFRIES, describing the work of a clinic conducted by the Brighton Town Council under the terms of the Ministry of Health's memorandum, said that patients were sent exclusively by the municipal health services—for instance, by the tuberculosis officer, the mental hospital, and the ante-natal clinic—with a definite statement that they were medically unfit for further pregnancy. General practitioners knew about the clinic, but rarely used it. In most cases the appliance recommended was the Mensinga pessary, though the size—65 in the average case—was smaller than was generally favoured. The best method, according to the speaker, was by the use of the sheath together with a contraceptive jelly or tablet, but she agreed that some couples disliked it on aesthetic grounds, and that many women preferred methods that kept the prevention of pregnancy within their own control. It was one of the contributions of birth control clinics to the public health that they were instrumental in discovering pelvic lesions and putting women in the way of proper treatment. They could, however, successfully serve this purpose only when they were conducted by qualified practitioners, and the speaker deprecated the practice of placing such a responsibility upon nurses and midwives. She urged that the powers of clinics should be extended to giving advice on eugenic and economic grounds, and, as an example of progressive action, she instanced a recent decision by the East Sussex County Council that she should see and help women patients of child-bearing age when they were to be discharged from the mental hospital.

Dr. C. KILLICK MILLARD said that in Leicester they had found themselves much hampered by the terms of the Ministry's memorandum, but after an interview with an official of the Ministry he concluded that "gynaecological" was a fairly elastic term. Dr. VYNNE BORLAND said that the Minister of Health had recently congratulated the nation on its low rate of infant mortality; but maternal mortality remained high, largely owing to the prevalence of abortion as a substitute for birth control. Dr. C. P. BLACKER agreed that extended powers were needed for municipal clinics, and stated that a group of M.P.'s had been formed to secure this end.

CHEMICAL SPERMICIDES

Lord HORDER, who presided over this and the next discussion, said that the programme of the conference struck a nice balance between the theory and the practice of the subject. In Dr. John R. Baker's absence, he asked Dr. Blacker to read an account of the investigations on chemical spermicides that had been conducted (under grant from the Birth Control Investigation Committee) by Dr. Baker and his co-workers at the Department of Zoology, Oxford.

Dr. Baker had designed a new laboratory test of the spermicidal power of suppositories which, by giving a much closer correspondence with clinical results than his previous test, was able to provide information of value

to clinical workers. In this test one suppository was mixed with 2.5 c.cm. of a fluid representing that of the vagina, and, when the suppository had disintegrated, this fluid was mixed with 5 c.cm. of an artificial semen consisting of cavy sperms suspended in albumen-saline—a fluid consisting of beaten egg-white (23 volumes) and 0.9 per cent. sodium chloride (7 volumes). The sperms were examined microscopically five minutes later, and it had been found that cavy sperms in this suspension behaved to the most diverse spermicides almost like human sperms in human semen. Taking the concentration of one suppository to 2.5 c.cm. of artificial vaginal fluid and 5 c.cm. of artificial semen as the standard—called S—suppositories were tested at S, S/2, S/4, etc., until the lowest effective concentration (namely, the lowest concentration which killed every sperm in two consecutive experiments) was found. With suppositories that relied on their acidity to immobilize sperms a suspension fluid had to be used with the same alkaline reserve as that of human semen, Dr. Baker having devised for this purpose a mixture of beaten egg-white (16 volumes) and a 6 per cent. solution of $Na_2HPO_4.12H_2O$ (14 volumes). Acidity destroyed the spermicidal powers of some spermicides, and in some cases the vaginal fluid might be acid enough to acidify the semen, but not to immobilize the sperms. When there was reason to suspect such sensitivity to acid in a suppository it was necessary to use an artificial vaginal fluid which would just acidify the sperm suspension in albumen-saline. Such an acid vaginal fluid could be prepared by mixing a 2.7 per cent. solution in water of lactic acid (31 volumes) with 0.9 per cent. sodium chloride (69 volumes). Soap was recommended as a spermicide, though the presence of protein reduced its effectiveness. One-tenth of a gram of sodium oleate had a lower effective concentration than any of the suppositories tested, and it was insensitive to acidity.

Lord HORDER said that Dr. Baker's paper, by illustrating the complexity of the problems within its field and the difficulties that had to be met in coping with them, showed how important it was that such a body as the National Birth Control Association should keep in touch with those aspects of contraception that came within the province of the Birth Control Investigation Committee. Replying to questions by Dr. DUNLOP, Mrs. HODSON, Dr. KILLICK MILLARD, Mrs. SPRING-RICE, Dr. VOGE, and Dr. FISHER, Dr. BLACKER said that though in theory direct ejaculation of semen into the uterus was a possibility, in practice there was little evidence of its occurrence. The suggestion that spermicides might damage without killing spermatozoa and so cause the production of defective offspring seemed to him groundless, but the Investigation Committee would study this question when work designed to discover the most effective spermicide had been completed. Soap-suds were harmless as well as effective spermicides, but solid soap would be harmful. As for the vehicle, Dr. Baker favoured cocoa butter and fatty substances, but it was important to discover substances that would serve this end in hot climates. The chief disadvantage of jellies was their cost, and of the use of sponges in olive oil that they had to be boiled for five minutes after coition.

Dr. H. M. CARLETON followed with a paper on the after-effects of inserting Gräfenberg rings in the body of the uterus. During the past year two rhesus monkeys had had silver rings inserted for seven and eight months respectively. In both the endometrium was found to be flattened at its points of contact with the ring, and in one the uterine glands had atrophied. At the necropsy of one of the subjects it was found, furthermore, that the endometrium had turned dark grey and the ring was blackened. Histological examination showed a large number of dark granules, mostly extracellular, lying below this endometrium. Dr. H. J. Phelps and Dr. John Phelps had demonstrated that the pigmentation was due to the deposition of a silver salt. These results confirmed earlier investigations made with the rabbit as test animal; and the further observation by Dr. Helena Wright that the silver ring was sometimes blackened in the human female suggested that deposition of silver granules also occurred in the human uterus. The pathological import of the deposition of so insoluble a compound was possibly very small; far more important, however, was the fact that the chemically changed ring became very brittle and liable to fragmentation in the uterine cavity. When due weight was given to the fact that prolonged irritation favoured the development of cancer, it could hardly be doubted that there was a potential danger in introducing into the uterine cavity a foreign body which was apt to undergo both chemical changes and physical fragmentation. In reply to discussion (in which Dr. DAVIDSON took part) Dr. Carleton said that he would think twice before inserting either a gold or a silver ring into a human uterus; and Lord Horder added that a satisfactory solution of the practical problems of contraception could hardly be in the production of prolonged irritation of the uterine cavity.

BIRTH CONTROL IN GENERAL PRACTICE

Dr. E. F. GRIFFITH, analysing his experience as a general practitioner who had taught birth control to about 500 patients in the past two years, said that in spite of the harmfulness and inefficiency of the methods commonly in use, some 90 per cent. of married couples adopted them for lack of better knowledge. In his practice he had found it possible to obtain nearly 100 per cent. of successes, and in the course of the necessary routine examination had been able at the same time to discover gynaecological disorders. He regarded the inculcation of the idea that births should be spaced and that women should have scientific advice on contraception as an essential part of medical practice, and pleaded for a fuller sex education of the general public.

Dr. JOAN MALLESON said that in dealing with women patients, and as a way of gaining their confidence, she made a practice of herself introducing the subject of birth control even when she was being consulted on quite other matters. She was able to endorse from her experience all that had been said about the effects on the nervous system of prolonged addiction to coitus interruptus.

In the course of the discussion a number of speakers stressed the need for instructing men patients in the best way of using sheaths.

THE HARVEY MEMORIAL TOWER

FOUNDATION STONE LAID BY LORD DAWSON

In connexion with the rebuilding of the tower of Hempstead Church, near Saffron Walden, as a memorial to William Harvey,[1] an interesting and largely attended ceremony took place on July 7th, when the foundation stone was laid by Lord Dawson of Penn, President of the Royal College of Physicians of London and of the British Medical Association. Among those present were the following:

Sir John Rose Bradford (chairman of the Harvey Memorial Committee), Mr. A. W. Ruggles-Brise (treasurer), and Dr. Arnold Stott (joint honorary secretary of the committee); Lord Horder, Dr. G. F. Still, Dr. R. A. Young, Dr. H. Morley Fletcher, Dr. Sidney Phillips, Dr. Arnold Chaplin; Sir Raymond Crawfurd and Dr. R. O. Moon (representing the Royal College of Physicians); Professor W. Langdon Brown (University of Cambridge), Sir Ewen Maclean (Vice-president of the British Medical Association), Sir D'Arcy Power, Dr. Herbert Spencer, Sir Percival Horton-Smith Hartley, Dr. W. S. A. Griffith; Lieut.-Colonel E. L. Gowland, Dr. G. de Bec Turtle, and Professor Tom Hare (representing the Harveian Society of London); Dr. N. G. Horner (Editor of the *British Medical Journal*), Dr. Michael Foster, Dr. Julius Burnford, and Dr. Ivor J. Davies.

[1] See Sir John Rose Bradford's article, with architect's drawing of restored tower, *British Medical Journal*, July 1st (p. 28).

DEDICATORY ADDRESSES

The occasion was one of great local as well as medical interest, and large numbers of people from the villages for miles around were in the congregation. Following a short service conducted by the Right Rev. T. A. CHAPMAN, D.D., Bishop of Colchester, Lord DAWSON OF PENN spoke as follows before laying the stone.

"The pleasure falls to me first of expressing gratitude to Sir John Rose Bradford, Dr. Stott, and Dr. Spencer, and, through them, to the many subscribers who have made the commencement of this work possible. I should also like to express our appreciation of the enthusiasm of the Rev. T. P. Conyers-Barker (vicar of Hempstead), without which this venture could not have come to fruition. From William Harvey's discovery there has grown a mighty tree of knowledge, fruitful of blessings to the world. His vision, his patient search, penetrated the darkness of centuries of error. He had to his hand no new aids, no new methods. From within or through himself came the new spirit which found truth and set it forth. No darkness can be so great as that of established authority. Time gives it the acceptance and the sanction of truth. To attack it becomes first an impiety and then an offence. During centuries the influence of Galen was paramount, so paramount as to forbid thought, and thus the lamp delivered from the ancients became extinguished. Harvey unfolded discovery by his convincing directness and restraint. It took but a few pages to refute centuries of tradition and error. Despite ridicule, disparagement, and even damage, he implanted the new knowledge with courageous yet courteous insistence. He preached that Nature must be pursued through assured, even though they be devious, paths, until the citadel of truth is reached, 'and,' saith he, 'in such pursuits it is sweet not merely to toil but to become weary.' There belongs to Harvey a rare distinction, which distinguishes him from most great men who have been makers of epochs, in that there has come down knowledge to us not only of his discovery, but of the man himself. Though he be dead, yet he speaketh. The spirit of his teaching, his inspiration, his sense of friendship, are still living forces within the profession of medicine. That leads me to suggest that this ceremony to-day, in which we are all taking part, is not only a memorial. It is more; it is a fulfilment of a desire, even a piety, to preserve in men's minds associations of his life and pilgrimage, and it does good to our souls to feel that Harvey is linked with this village, its soil, its landscape, its life, and its worship."

Lord Dawson then laid the stone, saying:

"In the faith of Jesus Christ, we place the foundation stone of this tower which is being raised to the glory of God and in memory of William Harvey, renowned physician and benefactor of humanity, in the name of God the Father, God the Son, and God the Holy Ghost."

After some prayers, the BISHOP OF COLCHESTER expressed the regret of the bishop of the diocese, the Bishop of Chelmsford, at his inability to be present owing to a long-standing engagement. The Church of St. Andrew, Hempstead (Dr. Chapman continued), was full of historical interest as an example of early Gothic. It was chiefly fourteenth century in date. In 1882 the tower fell, doing much damage to the body of the church. The appearance of the church after this catastrophe was deplorable in the extreme, the churchyard covered with debris, among it the fallen bells. In 1887 the church, with the exception of the tower, chancel, and Harvey Chapel, was rebuilt. In 1883 Harvey's coffin had been removed from the vault and placed in a handsome sarcophagus formed of a single block of Carrara marble, the work being undertaken at the expense of the Royal College of Physicians. The project for the rebuilding of the tower was formulated ten years ago, and £3,000 had been raised—a praiseworthy achievement; but the amount was not enough to restore the tower to its full height, and the rebuilding of the ringing room and the belfry must be postponed until a further £2,000 was forthcoming.

Of William Harvey the Bishop said that his name was on the scroll of the world's greatest benefactors. "*Palmam qui meruit ferat.*" This handsome memorial gift to Hempstead Church was much appreciated by the parishioners and by all who loved the ancient building. He also paid a tribute to the medical profession, and trusted that there might never be wanting in the land those who gladly used heart and brain in the service of their fellow creatures. Finally he prayed divine blessing upon the devoted vicar, who for the past twelve years had given himself heart and soul to this notable effort.

The hymn "The Church's one foundation" was then sung, and after more prayers the simple and moving ceremony concluded. Tea was afterwards served in the vicarage garden.

RADIUM "BEAM THERAPY" RESEARCH

Following upon the recent report of the conference on the radium "bomb," we are able to announce to-day an important development in facilities for research in this country on massive radiation. A five-gram unit of the element is to be loaned for this purpose, and the research is to be controlled by a governing body representative of medicine and physical science.

It will be recalled that when the Radium Commission decided to withdraw and dismantle the four-gram "bomb" used for massive radiation at Westminster Hospital some doubts were expressed as to the soundness of the decision, and in any case it was widely felt to be a pity that research on a very large unit should no longer be possible. A conference, called together by the Presidents of the two Royal Colleges, was thereupon set up to consider the subject. It arrived at the opinion that the decision of the Radium Commission was sound, though this finding was without prejudice to the question of the therapeutic value of four-gram or even larger radium aggregations. An expert committee was appointed by the conference to consider the scientific case for mass radiation, its advantages and dangers, and from the report of that committee (published in the *British Medical Journal* of January 7th last) it is clear that there is a field of usefulness for massive radium units, given adequate equipment, personnel, and clinical opportunity. The report stated: "We adopt the view of our committee that it is desirable that a radium unit of not less than five grams of radium element should be established."

This pronouncement, backed as it was by an important body of medical and scientific opinion, led to further activity. The initiative was taken by Professor J. C. M'Lellan, F.R.S., lately professor of physics at Toronto, and a member of the expert committee of the conference, who, with Mr. H. S. Souttar, had specially visited on behalf of the conference the radium institutes of Paris and Stockholm, where large units—respectively four-gram and three-gram—have been used for the distance therapy of cancer cases by Professors Regaud and Forssell.

The Union Minière du Haut-Katanga made a tentative offer of co-operation if suitable conditions could be established for facilitating and controlling research. The outcome is that the research on what will in the future be termed "beam" therapy (the misleading term "bomb" having been dropped by something like common consent) is to be organized and sponsored by a representative body of seven members—namely, the President of the Royal Society (Sir Frederick Gowland Hopkins), who will act as chairman; the Presidents of the Royal College of Physicians of London and of the Royal College of Surgeons

of England (Lord Dawson and Sir Holburt Waring), who will be joint vice-chairmen; Mr. Wilfred Trotter, representing the Medical Research Council; Sir George Blacker, representing the Radium Institute; Lord Rutherford, representing the Department of Scientific and Industrial Research; and Professor Arthur Hall of Sheffield, representing the Radium Commission.

Two meetings of this governing body have already been held, the second one at the Radium Institute on Tuesday of this week, when certain proposals took definite shape. It was decided that an Executive Research Committee should be set up, of which Professor M'Lellan should be chairman. The members of this committee will include two clinicians, together with a technical expert in Mr. Geoffrey Pearce, who also happens to be the representative in this country of the Belgian corporation. Another physicist will probably be added, together with two medical men, to carry out the research.

It has also been arranged that the location for the research shall be the London Radium Institute in Ridinghouse Street, Portland Place. The Institute has generously placed the whole of the accommodation necessary for the research at the disposal of the governing body.

These conditions as to effective control and adequate location having been fulfilled, M. Lechien, director of the Belgian organization, has agreed to loan at least five grams of radium, and if necessary at a later date a further five grams, for the purposes of "beam therapy." The loan is free of cost, except for insurance. The Union Minière is a commercial organization, but it is naturally interested in the progress of knowledge respecting radium and its properties, and with that in view it has agreed to make the loan for conducting research in London on mass radiation. We understand that the period provisionally fixed for the loan is two years.

The work before the Radium Beam Therapy Research will be to endeavour to discover how far the present limited field of operation for a massive radium unit in the treatment of cancer may be extended by co-ordinated clinical, experimental, and physical research. This announcement will be welcomed by workers on the non-medical as well as on the medical side, for it is known that some deplored the subdivision of the Westminster "bomb," and hoped that at some future date it might be reassembled. For a result which will place London in a line with Continental radium centres in this path of inquiry thanks are due to Professor M'Lellan for his initiative in the matter, to the Belgian corporation for the generous loan of the element, to the Radium Institute for the provision of facilities, and to the Prophet Trust and to the Royal College of Surgeons for the promise of financial assistance.

A quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on July 5th, when Dr. W. H. Kelson, vice-president, took the chair. The following half-yearly grants to widows and orphans were voted: from the ordinary funds £1,430, from the Brickwell fund £600, and as special grants £129 18s., making a total of £2,159 18s. At the present time there are fifty-two widows and five orphans in receipt of relief. The death was reported of a widow who came on the funds in 1904 and had received in relief £2,100; her late husband had paid in subscriptions £52 10s. A widow of a member recently dead applied for relief, and she was voted £50 per annum from the ordinary funds and £25 per annum from the Brickwell Fund. Membership is open to any registered medical man who at the time of election is residing within a 20-mile radius of Charing Cross. Relief is only made to the necessitous widows and orphans of deceased members of the society. Full particulars may be obtained from the secretary at the offices, 11, Chandos Street, Cavendish Square, W.1.

Scotland

Research by General Practitioners

The forms for the investigation into valvular heart disease (including treatment) to be based upon data furnished by insurance practitioners have now been issued. They have been drawn up by a Committee on Medical Investigations, comprising representatives of the medical staff of the Department of Health for Scotland and of the Scottish Committee of the British Medical Association, which was set up on the recommendation of the Department's Scientific Advisory Committee. The main objects of the present inquiry are: (1) a review of the various methods of treatment in use in general practice; (2) a comparison of the effects of such treatment in various cardiac conditions; and (3) a survey of the incidence and of the relations of the symptoms and signs found to be present. The recording of particulars on this form (M.R.3) commenced as from July 1st, and will be continued for a year, or such period as the Department may determine. The chief problem of the committee was to frame a questionary in a form which would be at once simple for the practitioner and convenient for subsequent analysis and grouping. The signs and symptoms concerning which information is desired are mainly those associated with cardiac decompensation, and these are considered to be the minimum essential data from which a comprehensive view can be obtained of the clinical condition of the patient at the onset of treatment and of the developments which take place during treatment. The form itself is neat and attractive. Information is requested on some twenty symptoms and signs, and the practitioner can record their presence or absence, on each examination, by a plus or minus symbol. Space is given for the record of examinations upon eight occasions, and, in general, the practitioner will not require to record a longer series, although, if he desires to do so, a "continuation sheet" is supplied. In regard to treatment information is sought on the general character of diet, the exercise prescribed, and the medicinal treatment by drugs intended for direct action upon the heart or for the treatment of symptoms. Brief answers to these questions can be given under the headings "drug employed," "preparation," "dose," and "frequency of administration." The last page of the form is left blank for any remarks that the practitioner may desire to make, including notes on other clinical or pathological data. It has been found by trial in several cases that the whole series of observations necessary to complete the record of one examination can be entered in approximately three minutes. The form, apart from its usefulness in relation to the general inquiry, might also be used by the practitioner as a valuable record for his own subsequent information.

Health of Edinburgh

The annual report presented by Dr. John Guy, medical officer of health for Edinburgh, to the Public Health Committee of the corporation refers to several developments of medical interest. The population of the city was estimated at 447,800, an increase of 4,758 as compared with the census population in 1931. During the year there were 6,960 births, including 3,537 males and 3,423 females, giving a birth rate of 15.5 per 1,000, the lowest recorded for the city except for 1917-18. The infant mortality rate was 73 per 1,000 births as against 69 per 1,000 in 1931, and the death rate was 13.5 per 1,000 as compared with the average for the last ten years of 13.9. Deaths from pulmonary tuberculosis

numbered 313, and for the first time in the history of the city there was one ward (Colinton) in which no death occurred from this cause. The city was comparatively free from infectious disease, except for an extensive outbreak of measles in the earlier part of the year, which severely taxed the hospital accommodation. The most noteworthy feature of the year's work was the reorganization of the municipal general hospitals. These are now named the Western, the Northern, and the Eastern General Hospitals, and an attempt is being made to classify patients so that the more acute cases, or cases requiring operation, will be sent to the Western, while the Northern will be reserved for cases of a subacute nature, and the Eastern for chronic cases. The organization and staffing of these hospitals will provide some 900 beds for teaching purposes, and, although many of the cases are chronic, they present a valuable field for medical training and research in regard to senile and bed-ridden persons. With regard to mental health services, an important feature of the year's work was the extension of Gogarburn certified institution, where the number on the register was doubled by the addition of two pavilions, and where the total population at the end of the year was 313. Attention is drawn in the report to a further increase in the number of deaths from cancer, which accounted for 849 cases as compared with 686 in 1931. The epidemic of measles early in the year was the worst ever experienced in the city, notifications numbering 8,786. This figure, however, represented only the first cases occurring in each household, so that the total number affected must have been at least double. Over 50 per cent. occurred in children under 5 years, and there were eighty-two deaths. The report deals with an investigation into atmospheric pollution in the city. The clearest portion of the day was found to be at 3 a.m., and the smokiest between 9 a.m. and 10 a.m., with a secondary maximum at 7 p.m. These maxima appeared to coincide with the times of stoking domestic fires to cook meals; the greatest volume of smoke in Edinburgh was contributed by domestic fires.

Aberdeen University Graduation

At the summer graduation of Aberdeen University the honorary degree of LL.D. was conferred upon William James Mayo, M.D., of the Mayo Clinic, Rochester, Minnesota, U.S.A. The Dean of the Faculty of Law, in presenting Dr. Mayo, said that in him Aberdeen acclaimed a surgeon of international reputation, for the Mayo Clinic had been for many years a Mecca of those who wished to be freed from suffering. The methods and resources of this clinic had always been placed unreservedly before the medical profession, and the pre-eminence of Dr. Mayo's skill had been reflected in the many honours bestowed upon him. The ties between Aberdeen and the United States were numerous, and it was interesting to remember that in 1765 the University had trained certain physicians who subsequently helped to staff the medical school in Philadelphia. The present year was the jubilee of Dr. Mayo's entrance upon the medical profession, and the University of Aberdeen wished to pay its homage to one of the greatest surgeons of his time. Principal Sir George Adam Smith reviewed the progress of the University during the academic year 1932–3; the number of students had been 1,287, as compared with 1,252 last year. The students were to be congratulated on their success in raising over £4,000 for charities, especially hospitals of the city, during their gala week. Among the ordinary degrees conferred were those of M.B., Ch.B. on twenty-one graduands and of M.D. on seven.

England and Wales

Committee on Hospital Costs

Sir Hilton Young, the Minister of Health, has appointed a Departmental Committee whose terms of reference are:

"To consider and report on the questions of the capital cost of construction and the annual cost of maintenance of the following classes of public buildings provided by local authorities—namely, hospitals (including mental hospitals), public assistance institutions, mental deficiency institutions, maternity homes (including maternity departments newly constructed or added to hospitals), and baths and wash-houses, special regard being paid to (*a*) the establishment and periodic revision of standards; (*b*) modern methods of construction; and (*c*) the possibility of securing a reduction in present costs without impairing the efficiency of the buildings for the purposes for which they are designed."

The Committee is appointed in pursuance of a recommendation made by the Committee on Local Expenditure in their Report (Cmd. 4200) of October, 1932, and in accordance with the announcement made in the Minister's Circular 1311 of March 22nd, 1933. Its members are: Sir L. Amherst Selby-Bigge, Bt. (Chairman), Mr. J. Allcock, Mr. N. B. Batterbury, Dr. H. W. Bruce, Mr. R. C. Cox, Dr. J. Ferguson, Mr. J. Kirkland, Dr. T. S. McIntosh, Mr. R. H. P. Orde, Mr. L. G. Pearson, Mr. A. Scott, and Dr. W. Rees Thomas. The Secretary will be Mr. J. Topping of the Ministry of Health, to whom all communications relating to the work of the Committee should be addressed.

The "West London" Dinner

The West London Medico-Chirurgical Society held its fifty-first annual dinner on July 6th, at the Trocadero Restaurant, with Dr. Julius Burnford, the president, in the chair. After the loyal toast had been honoured the health of the society was proposed in a brief speech by the Very Rev. W. R. Inge, Dean of St. Paul's, who said that he expected a medical dinner would have consisted chiefly of vitamin dishes: cod-liver oil, lettuce and lemon, and vitamin D "to preserve us from rickets." Commenting on the medical profession Dean Inge said that he and his family were deeply indebted to it. The president, in reply, remarked that, as the West London Medico-Chirurgical Society dinner came at the end of a long series of medical dinners, during which he had listened to speeches from eminent members of various callings in life, he found it difficult to think of anything new to say. Societies like the Harveian and the Hunterian lent themselves to "titular" speeches. Mentioning by name the founders of the society, Dr. Burnford went on to show that the West London Medico-Chirurgical Society had progressed on a wide front. Dr. W. S. C. Copeman, proposing "The Guests," began with a quotation from the Bible, and then took refuge in *Who's Who*. Welcoming the presence of Dean Inge, he expressed the hope that when he retired from St. Paul's next year he would once more delight the world with his writings. Dr. Copeman then referred to each guest by name, with apt biographical allusion. Among those present were Lord Dawson, P.R.C.P., Sir Holburt Waring, P.R.C.S., Dr. Cecil Wall, Mr. Warren Low, and Lord Justice Slesser. In a witty speech Lord Justice Slesser replied for the guests. He told the story of how he once had, against the better judgement of his clerk, interviewed in his chambers a mentally afflicted lady. This had taught him that the two professions of law and medicine should not be confused. Medicine, he said, was liberal and radical; the law was conservative. The response was ably seconded by Sir Holburt Waring, and Mr. B. A. Levinson proposed the president's health.

The Wrightington Hospital

The new Lancashire tuberculosis centre at Wrightington Hospital, near Wigan, has been formally opened by Sir George Newman. Reference to this institution and to its place in the Lancashire tuberculosis scheme appeared in the *British Medical Journal* of June 24th. In his address Sir George Newman quoted the precedents of the successful campaigns of the past waged against leprosy, plague, small-pox, and cholera. These diseases, though now banished almost completely from this country, were still flourishing in some other parts of the world, where, so far, it had not been possible to combine against them that force of will and determination which had proved so successful in England. Now the turn of tuberculosis had come, and a great part of the victory had been won already, for in the last sixty years its incidence and mortality had shrunk by three-quarters. Sir George traced the origin of the hospital to the two monastic infirmaries built in Athelney by King Alfred exactly a thousand years ago, and this retrospect led him to comment on the way in which the best of the medical traditions of the past were now being associated with the most modern discoveries in the task of eradicating tuberculosis. Traces still persisted in the new institution of ancient Greek and Arabian medicine. Laennec's spirit lived on in the stethoscope; the discovery by Koch of the tubercle bacillus, and by Röntgen of *x* rays, had afforded the means of diagnosis and treatment which were proving so effective to-day. Wrightington owed much to Lord Lister, and should never forget the name of Sir Robert Jones, the pioneer of orthopaedic surgery. This institution, unlike any other temple of healing in the country, was being built into a great national scheme for the prevention of tuberculosis. It afforded the best example in all England of the combination of means of prevention with methods of healing. Lancashire had the best scheme for attacking tuberculosis in any county; each year it was saving a thousand lives from tuberculosis. Children born now in that county had an expectation of life sixteen years longer than their grandfathers had had. England showed the lowest death rate of any civilized country in the world. Housing had improved, the nutrition of the population was better, and even the strain of unemployment had not brought about any increase in the sickness rate. All these were now bearing the fruit of a diminishing tuberculosis incidence. The new hospital was not only a temple of healing, but also of a most liberal education. Sir George Newman concluded his address with a warm tribute to the great part being played in the hospital and the home by the devotion and efficiency of modern nursing, particularly in the campaign against tuberculosis.

Inquests by London Coroners

The number of deaths reported to London coroners in 1932 was 8,360, an increase of 205 on 1931. Inquests were held in 3,491 cases, as against 3,603 in the previous year. Post-mortem examinations were made in 2,660 of the inquest cases, and in 2,588 of the other cases in which no public inquiry was necessary. A verdict of "Murder" was returned in twelve cases (two of them newborn infants), of "Manslaughter" in four, and two inquests were held in connexion with executions. The total number of suicides was 719, an increase of eighty-four on the previous year. The number of deaths from want of attention at birth increased from twenty-eight to forty. Death by accident was recorded in 1,892 cases, as against 2,050 in 1931; injuries accounted for forty-eight deaths, and there were fifty-two deaths by drowning. A verdict of "Death from natural causes" was returned in 573 cases, and there were four verdicts of "Cause of death unknown." Inquests on newly born children increased from fifty-one to sixty-seven; in twenty-seven cases it was decided that the children were stillborn. Excessive drinking accounted for fifty-four deaths, as against fifty in 1931. The cost of inquiries and inquests, exclusive of coroners' salaries and the rent of coroners' courts, was £22,395.

CORRESPONDENCE

Memorial to Dr. Carey Coombs

SIR,—Many of the friends and patients of the late Dr. Carey Coombs have expressed the desire of establishing in his memory some form of permanent memorial. With this object in view a committee of eight has been appointed, representing the Bristol University, the British Medical Association, the Bristol Medico-Chirurgical Society, and the Bristol General Hospital. We (the members of this committee) have decided to collect funds for the purpose of this memorial, and are satisfied that whatever sum is raised it will be possible to invest it in such a way as to keep Dr. Carey Coombs's name in perpetual remembrance. We may be able to endow a research studentship (an object very dear to Dr. Carey Coombs's heart) or a lectureship, associated with the Bristol University. The income of this sum will be given to Mrs. Carey Coombs for the next five years towards the education of her children.

Promises or cheques should be sent to Dr. Elwin Harris, jun., 13, Lansdown Place, Clifton. Cheques should be crossed "Coombs Memorial."—We are, etc.,

ERNEST W. HEY GROVES,
President, Bristol Medico-Chirurgical Society (*Chairman*).
CLARE SMITH,
Committee of the Bristol General Hospital.
EDWARD FAWCETT,
Dean of Medical Faculty, Bristol University.
C. E. K. HERAPATH,
British Medical Association and Bristol Royal Infirmary.
S. MARLE,
Bath Division of British Medical Association.
C. A. MOORE,
Bristol General Hospital.
J. A. NIXON,
Professor of Medicine, Bristol University.
H. ELWIN HARRIS, jun.,
Bristol Medico-Chirurgical Society (*Secretary*).

Clifton, July 9th.

Paying Patients at Voluntary Hospitals

SIR,—Dr. Rowland Fothergill, in his letter in your issue of July 8th, states that the Pay Beds Committee of King Edward's Hospital Fund proposed:

(*a*) That the accommodation provided in voluntary hospitals should be placed at the disposal of those of "moderate means" on the same terms and conditions as apply to the "sick poor," no payment for medical treatment being allowed.

(*b*) That the general practitioners should be "kept in contact with" these patients by communication, information, and advice.

(*c*) That the committee of management should lay down certain rules or limitations as to the medical practitioners who should be allowed to attend these patients.

The actual conclusions of the Pay Beds Committee on these subjects were:

(*a*) On the question of payment of medical fees, they stated that there was a difference of principle between wards where treatment was provided by the honorary medical staff free of charge and wards where the doctors received private fees; and that it was desirable that as many prospective pay bed

patients as possible should be enabled to place themselves in a position in which they can pay the full cost of maintenance in a pay ward and a medical fee as well.

(*b*) On the question of the relation with general practitioners, they quoted numerous different arrangements in force at different hospitals, and expressed the view that the maintenance of relations with general practitioners would be most important to the success of any large extension of the pay bed system if full use was to be made of the beds.

(*c*) On the question of rules or limitations as to the medical practitioners who should be allowed to attend the patients, they discussed the numerous differences in the existing rules, and the reasons given for them, and suggested that the question whether treatment should be confined to the medical staff or should be open to other consultants or to any registered practitioner was one that the governing body of each hospital should decide for itself.

—We are, etc.,

LUKE,
H. A. WERNHER,
Honorary Secretaries.

King Edward's Hospital Fund for London, July 11th.

Medical Practice and the Curriculum

SIR,—I am glad to see Dr. Camac Mellor, in your issue of July 8th, dotting the " i's " and crossing the " t's " of the argument for specialization in the medical curriculum. In a letter which appeared in your columns on June 11th, 1932, I pointed out that specialization for the practitioner was the inevitable outcome of the trend of events, and indicated that the universities would, by the force of circumstances, be compelled to rearrange the course of teaching for the student with this end in view.

I suggested further that while the authorities were considering the possibilities of change they might also bring about badly needed reforms in the method of teaching. The customary method of expounding subjects by lectures, for example, has nothing to recommend it so long as there are good textbooks available. It is a waste of time, increasingly resented by the more intelligent type of student. Discussion classes could be arranged to take the place of lectures. These would have the important advantages of explicating and elucidating obscure and difficult points, and at the same time of providing the student with an insight into scientific method and the estimation of evidence. The need for the propagation of the scientific attitude, in view of the prevalence of the variegated mystical and sham " systems," was never more evident than it is to-day.—I am, etc.,

London, W.1, July 10th. FREDERICK DILLON.

The G.P. and Midwifery

SIR,—The recent correspondence on this subject is of interest and importance to the profession. It is not astonishing that the general public who read the figures published regarding maternal mortality and morbidity should begin to wonder where the fault lies. Very naturally they blame the supposed inefficiency of the general practitioner, not the maternity hospital presided over by experts. The blame is often unfairly placed.

Speaking for the general practitioners of the older school as well as for the younger generation, my experience during forty-five years' practice in the Highlands of Scotland has been that in this large and scattered area midwifery is conducted with skill and followed by satisfactory results. We thank Dr. E. K. Mackenzie, whose pioneer ante-natal work is known and recognized by us, for his courageous defence of the maternity work of the general practitioner (*Journal*, June 3rd, p. 983). Dr. Mackenzie says that " the bulk of my patients live in cottages with no sanitary conveniences and only outside well-water supplies." This is true of most of the patients whom I have attended in Sutherland, except in the larger villages. But there is no puerperal fever ; my last case dates back to the early nineties of last century. I have never seen a maternity case go wrong in the hills far away (ten to twenty miles) from the doctor. Difficult cases causing delay and much anxiety to the doctor occur as they do elsewhere—eclampsia, malpresentations, occipito-posterior positions, etc.—yet mothers and babies seem to do well. We have always acted on the belief that an anaesthetic is necessary for the examination and diagnosis of any case in which the diagnosis is not quite certain. Chloroform is practically the only anaesthetic possible in country work. It never fails, and, with care, unsatisfactory results are almost unknown. The letter of the Master of the Rotunda (*Journal*, July 1st, p. 33) admirably sums up the whole question of chloroform in maternity work.

My conviction is that, generally speaking, the country doctor conducts his midwifery cases with less haste than his busier colleague in town practice can afford to do. There is less interference with the course of nature and correspondingly good results. Midwifery is his specialty. His knowledge is above the average, his judgement sound. He works mostly alone, and courage and self-reliance are developed. Most of our districts are served by " Queen's nurses." They are fully trained, and in addition hold the C.M.B. diploma. They give valuable help to the doctors in midwifery as well as in general cases.

Pace Dr. Mackenzie, my opinion is that in a widespread and thinly populated county such as this it would be of advantage to us in our work, and possibly therefore an additional safeguard to our patients, if we had at our disposal a few maternity beds attached to our county hospital to which, at the discretion of the doctor in attendance, a complicated midwifery case might be transported by ambulance. Dr. Mackenzie says at the close of his letter: " Thank God I shall be dead before that day comes . . ." [maternity hospitals in the Highlands]. Would he consent not to leave us if we ask for only a few maternity beds? I trust he would, for we should be very unwilling to hasten an event which his colleagues fondly hope is far distant.—I am, etc.,

Golspie, Sutherland, July 1st. JAMES B. SIMPSON.

SIR,—Every general practitioner must have appreciated the recent correspondence on midwifery in the *British Medical Journal*. Dr. Mackenzie's letter was excellent ; and I should like to congratulate Dr. Kathleen Vaughan on her championship of the squatting position. The psychological side of maternity is well put by Dr. G. D. Read in his book *Natural Childbirth*. I feel that many of the articles in the public press on maternal mortality only result in scaring future mothers, and so do no good. My own experience of midwifery runs to about 1,500 cases (my actual records were lost when removing to another house), and I have had four deaths (one at least of which was unavoidable, being due to intraperitoneal rupture of a small ovarian dermoid during labour). This is not an alarming mortality ; and I feel sure there is a no more alarming morbidity. My cases have included all presentations except mento-posterior (the only time I have heard the vagitus uterinus was in a face presentation), and I think I have had to use every obstetric instrument except a cephalotribe. My practice is not within easy reach of any hospital.—I am, etc.,

Barton-on-Humber, July 7th. F. P. H. BIRTWHISTLE.

Use of Quinine in Normal Labour

SIR,—Dr. G. C. Dorling's letter in your issue of July 8th (p. 79) does not do justice to my original paper in the *Journal* of January 25th, 1930. Neither Dr. Rees's letter of April 1st (p. 587), to which he refers, nor my paper had anything to do with the question of induction of labour by quinine. Both of us referred to the method of pre-natal quininization as a routine for cases of labour expected to fall within normal limits. Without going into details, the method consists in giving a small dose of quinine (1½ grains three times a day) for a period of three weeks before the anticipated date of labour, the object being to tone up the uterus and to try to ensure good contractions and good retraction. In the first 400 cases observed by Dr. Philip Jones and myself it was specifically noted—among many other considerations—that no tendency to retained placenta occurred. In a very much larger number of cases observed since then by my colleagues and myself this claim has been substantiated, and should any individual worker see one such case it should not, without careful analysis, be blamed to the quinine.

About twelve years ago, when pituitary extract had a great vogue for use in the second stage of labour, I saw three consecutive cases of retained placenta, and in my own mind I blamed the pituitrin. A year later one of these same cases again had a retained placenta with no pituitrin (and no quinine). This is but one more example of the extreme difficulty in medicine of distinguishing between " impressions " and " facts."—I am, etc.,

DOUGLAS A. MITCHELL,
Bath, July 8th. M.D.Lond., F.R.C.S.Ed.

Aetiology of Acute Rheumatism

SIR,—It is a well-authenticated fact that in temperatures above about 70° F. plague cultures can be splashed and the air around inhaled with impunity, but when the same thing is done at a very low temperature the workers get pneumonic plague. There is an almost exact correspondence to this in the behaviour of natural pneumonic plague. In the Tropics pneumonic plague may kill every person in a house, and yet it never becomes epidemic, and an unmasked doctor can generally visit the cases with reasonable safety ; but in a Manchurian winter pneumonic plague spreads as an epidemic, and almost all unmasked persons who handle the case get the disease and all properly masked ones escape. There are two theories to explain the above: one that warm air attenuates the bacillus in the droplet, and the other that cold air weakens the defence of the mucous membrane. When an Eskimo enters his dwelling he throws off all his clothes and lives completely naked in a temperature of about 70° F. ; at other times he is mostly hunting. Thus, so far as droplet infection is concerned, he is virtually in the Tropics.

If acute rheumatism is propagated by droplet infection then the anomaly of the Eskimo, pointed out by Dr. E. C. Warner in the account in the *Journal* of June 17th (p. 1060) of " Soil and Climate in Relation to Rheumatic Diseases," disappears. It may be considered almost an axiom that if an acute febrile disease tends to be relatively rare or mild within 15 degrees of the Equator near sea-level and common in cool and temperate climates (diphtheria, scarlet fever, measles, pneumonia, whooping-cough, rubella, influenza, common " colds," etc.), or if it occurs as winter epidemics at the tropical margin which are rapidly checked by the advent of summer (small-pox, cerebro-spinal fever, etc.), then it is due to an organism which enters the body via the air. Acute rheumatism and scarlet fever stand, I believe, almost by themselves in their intense objection to tropical conditions ; if the infection of the one is received via the air that of the other probably is also.

As a medical man I spent twenty-three years in Hong-Kong—about the third largest port in the world as regards tonnage of shipping and a city of more than half a million people, with heavy passenger traffic to and from North and South America, the Philippines, China, Indo-China, and Malaya—and I never saw or heard of a case of acute rheumatism arising there ; nor did I ever see a lesion caused by it, though I examined about 4,000 hearts of Chinese children post mortem. Scarlet fever sometimes rages in epidemic form in Shanghai, whence there is a large passenger traffic to Hong-Kong, about four days' steaming to the south: cases arrive in Hong-Kong and have been known to infect children using the same room, but no epidemic is ever set up.

In a Hong-Kong summer dewdrops hang upon the trees all day, pillows smell of mould twenty-four hours after drying, pictures go mouldy on inside walls, match heads drop off, the clouds blow through your rooms, and the rain bird toils all day ; but there is no acute rheumatism. *Rattus norvegicus* has been common in Hong-Kong for at least twenty-five years, and there are many sewers. In 1908–9 *Xenopsylla cheopis* was common and *Ceratophyllus fasciatus* very rare. The plains of India are not tropical in winter ; people huddle together there for warmth in a temperature under 55° F. I have seen them in Punjab villages far from the Hills so closely packed together, in a temperature not much above freezing point, that I could not walk between them.

I have never heard of a therapeutic measure in which cases of acute rheumatism or scarlet fever were kept in a humid temperature of about 80° F. night and day, but I consider it most important to try such a measure. In acute rheumatism we might hope that it would prevent relapses and shorten the duration of the disease. In scarlet fever we might hope that the treatment would pay for itself by diminishing return cases and shortening the stay in hospital. There must, I think, be plenty of tomato houses in the hands of the banks which could be adapted to the purpose. Better grapes, better melons, better tomatoes, and better cucumbers are grown in English coal-heated fruit houses than in their native lands, because the temperature and moisture can be regulated to a nicety. Perhaps we could go one better than the Tropics in the treatment of some diseases.—I am, etc.,

Hassocks, Sussex, June 24th. C. M. HEANLEY.

Prophylaxis of Malaria

SIR,—May I be permitted to endorse the letter of Dr. O. G. Wilde in your issue of July 1st (p. 35) on the subject of malaria and quinine prophylaxis. I do so with the greater confidence since my experience covers both West Africa and Malaya, of whose medical service Dr. Hoops was until lately a most distinguished member.

I served in West Africa in a most malarious up-country district for twenty months during 1925–6. Of anti-malarial work as it is known and carried out in Malaya there was none. I accepted, in common with most others, the practice of the daily dose of quinine, and during the whole of my service took it religiously. In the small community in which I lived two of the other Europeans developed malaria. In both cases they had, against all advice, omitted to take quinine. The presence of malaria in this area was not in doubt, a very high proportion of the African children having enlarged spleens, and typical malarial attacks being common. Following my return from Nigeria I spent three years in the Malayan Medical Service. There I found that the idea of quinine pro-

phylaxis was scorned, but that attacks of malaria among Europeans in malarious areas were assumed to be almost unavoidable, and accounted for much invalidism. I could not but contrast this with the attitude to malaria in West Africa, where the individual who went down with fever was looked upon as, in most cases, one who was simply paying the penalty of neglect of an obvious precaution.

My work in Malaya took me frequently to malarious areas, chiefly on rubber estates, where it was no uncommon thing for the European staff to suffer from malaria. While on these visits I regularly took quinine. Neither then nor since have I ever suffered from malaria. On my departure from Malaya I wrote a letter on this subject, which was duly published in the *Malayan Medical Journal*. I would agree with Dr. Hoops that quinine prophylaxis as a method of *mass* attack on malaria does not in practice work, but from my experience, and from the experiences of others, I believe that to be largely due to the fact that the quinine is either not taken or else that it is got rid of at the earliest opportunity. But where quinine prophylaxis has been honestly put to the test by individuals themselves, the result, so far as I have been able to discover, has always been highly satisfactory. The personal prophylaxis of malaria by the taking of quinine badly wants a real trial in Malaya.—I am, etc.,

March, Cambs, July 1st. THOS. C. LONIE.

SIR,—Dr. O. G. Wilde's letter in your issue of July 1st (p. 35) interests me, and from my own somewhat prolonged experience in dealing with malaria in Assam I can in very large measure confirm what he writes regarding the high value of quinine prophylaxis in that disease. Without doubt it is the irregular or non-quinine taker who suffers from continual malarial attacks. The person who takes the regular daily dose of 5 grains of quinine is, as Dr. Wilde states, not immune, but gets far less frequent attacks, and attacks as a rule milder in character. My work in Assam lay for over fourteen years in highly malarious districts, where subtertian malaria was endemic and cases of blackwater fever of lamentably frequent occurrence. With Dr. Wilde, I never saw a case of blackwater fever in a person who took quinine regularly, and I proclaimed this constantly as a definite insurance against this deadly disease. Blackwater fever, I found, occurred pre-eminently in people who despised prophylactic quinine, and who suffered from repeated, more or less neglected, attacks of subtertian malaria, or, again, in persons who took heavy doses of quinine only on the occurrence of a malarial attack, dropping the treatment before the infection was completely overcome. In this type of person any prolonged fatigue, unusual exertion, or chill precipitated an attack of blackwater fever, often, in the case of members of the European community, with fatal results.

Now all this is indubitably true, although appearing much at variance with Dr. Hoops's statement (June 10th, p. 993) of the uselessness of quinine prophylaxis in malaria; but I think the secret of the divergence of opinion lies in the *intensity of infection*. I am satisfied that the results of administering quinine in prophylactic doses to a coolie population can scarcely justify the expense, and to depend on this method for the control of malaria on a tea or rubber estate is futile. Prophylactic quinine here cannot take the place of measures directed against the mosquito, although it is perhaps of some limited use as a supplementary means. Where it is of high proven value is in the case of Europeans and others who live in reasonably sanitary surroundings, who are accustomed to the use of mosquito nets, or who inhabit screened houses. In dealing with a coolie population success must be looked for primarily in anti-mosquito work, and then in the thorough treatment of malaria cases as they arise with quinine or, as Dr. Hoops suggests, with atebrin, which seems such a remarkable therapeutical advance—especially in children, the reservoirs of infection.—I am, etc.,

Newport, July 3rd. CHARLES E. P. FORSYTH.

SIR,—I am in agreement with Dr. O. G. Wilde's letter in the *Journal* of July 1st (p. 35). After nearly twenty years in Nigeria I can say that the majority of the off-duty cases diagnosed malaria were among those who did not take quinine regularly. I was in a moderately healthy district, but the malaria was always among those who were not careful to take their daily 5 grains. I am of opinion that only one salt of the drug should be taken—namely, the bihydrochloride—as I have seen the tablets of sulphate in the faeces almost as they have been taken. All my cases of blackwater occurred among persons who either did not take quinine or only took it when they felt ill. A great deal of harm is done by such sweeping statements as those referred to by Dr. Wilde. I have never suffered from malaria, but have always been careful to take quinine daily, and an extra dose if I had been exposed to rain or had done extra hard journeys. I always continued quinine daily for two months after arrival in England, and have never felt any ill effect. The wise people in West Africa are those who take their 5 grains of quinine daily.—I am, etc.,

J. R. C. STEPHENS.
St. Austell, Cornwall, July 3rd. W.A.M.S. (ret.).

Vaccines in Coryza

SIR,—I have read with interest Dr. F. Porter's remarks (June 24th, p. 1127) on my paper "Autogenous Vaccines in Acute Coryza" in the *Journal* of June 10th (p. 996). In view of the fact that three distinct groups of observers—namely, von Sholly and Park, Jordan and Sharp, and Ferguson, Davey, and Topley—all carried out investigations into the value of stock anti-catarrhal vaccines on a scale which can only be described as colossal, and came to the unanimous conclusion that the protective effect of these vaccines was *nil*, I feel justified in treating with some scepticism Dr. Porter's 70 per cent. successful protection, especially as he "cannot give any accurate statistics." Dr. Porter states that "the proof of the efficacy of vaccine treatment lies in the fact that a large number of patients demand it annually." It is also true that the demand for patent medicines is enormous, but I doubt if Dr. Porter would regard that as a proof of their therapeutic efficacy.

With regard to the stage of the disease at which treatment was given, patients were, of course, treated as far as possible in the absence of acute symptoms. The question of vaccine dosage is a difficult one, but it seems to me that vaccines may be used for two purposes in therapeutics: first, to immunize the patient against the organism in question, in which case such evidence as is available would suggest that the larger the dose and the greater the reaction obtained the more effective is the subsequent immunity; and, secondly, to desensitize a patient who is supersensitive to a bacterial toxin, in which case minute doses are necessary and reaction is to be avoided. Dr. Porter would appear to use his vaccines in the second way, and it is, of course, not impossible that sufferers from coryza may be supersensitive to the toxic products of the causal organism, though I have never heard of any evidence to that effect.

With regard to the omission of the *Micrococcus catarrhalis*, in a somewhat extensive investigation of the

bacteriology of the respiratory tract I found Gram-negative cocci of the *catarrhalis* type to be present in 100 per cent. of normal throats and about 40 per cent. of normal noses. In the very extensive work done on the aetiology of acute coryza in the last fifteen years, as far as I am aware only one observer has suggested that the *Micrococcus catarrhalis* played a primary part ; and as his observations were confined to the study of a single case, I think they may be discounted. The only justification for the extensive use of vaccines for the prophylaxis of the common cold is that a certain number of individuals appear to benefit from them, and that these can only be selected at present by the process of trial and error.—I am, etc.,

Leeds, July 4th. L. HOYLE.

Perforating Ulcer of Foot

SIR,—Messrs. James and Matheson's article in the *Journal* of July 1st (p. 12) interested me greatly. Personally I have found that a periarterial sympathectomy upon the femoral artery, performed thoroughly—that is, dissecting completely the adventitia for at least three and a half inches—is an effective method in cases of perforating ulcer of the foot. My most convincing case was operated upon at Oldchurch Hospital, Romford, last December. The patient was a man of 61, and the ulcer had been present for the last thirty years. During this time it had never healed up, even for a short time, in spite of all kinds of treatment, which had included periods of rest in bed for upwards of three months. After the periarterial sympathectomy the ulcer healed completely within five weeks. I saw him a fortnight ago. The sole of the foot was quite healthy, and he had been wearing boots and walking normally during the interval.—I am, etc.,

London, W.1, July 4th. HAMILTON BAILEY.

Otorrhoea

SIR,—Mr. E. Watson-Williams, in his interesting address (*Journal*, July 8th, p. 47) refers to the treatment of chronic otorrhoea by zinc ionization, and among other things says that the result would be the same whether the electric current were used or not.

In zinc ionization two factors have to be considered—the zinc and the current. After the ear has been cleansed and filled with zinc sulphate solution (one-quarter of one per cent. in strength), the positive electrode is placed in the ear and the positive zinc ions only are introduced into the film of infected discharge adhering to the surface and into the superficial cells of the tissues. The quantity of ions introduced, and the depth to which penetration extends, depends solely on the strength and duration of the current. Tympanic cavities are approximately of the same size. The dose was determined empirically. It is found that with a current of 3 milliamperes for ten minutes the dose of zinc is satisfactory. Zinc ions readily combine with albumin to form a firm, insoluble precipitate. This precipitate is a bad culture medium for bacteria. As the firm precipitate or coagulum of zinc and albumin is insoluble, the action of the zinc is confined to the tissues into which it has been introduced. Subjacent tissues are not irritated.

The factors essential to success in local antisepsis are that the action of the drug should be inimical to the activities of bacteria, and that tissues subjacent to the surface treated should not be irritated. Zinc ionization fulfils these desiderata, and it is the only antiseptic treatment for suppuration known to me which is worthy of the name. The majority of cases of chronic suppuration in the ear, due to sepsis alone in an accessible position, cease to discharge after one treatment. Can this be said of any other method of antiseptic treatment? It is owing to its efficacy that it is of economic importance.

Nearly ten years ago an aural clinic with one session of two and a half hours a week was added to the school medical service at Tottenham. The school population was 25,000. There were a large number of cases of chronic otorrhoea. These cases were examined, and the cause of chronicity determined in each. For those cases of considerable severity, in which sepsis alone in an accessible position was considered to be the responsible factor, zinc ionization was the standard form of treatment. None of the cases received any treatment in the intervals between their visits to the clinic. In those in which there were factors additional to sepsis, such as polypi or granulations, these were first treated. The majority of those cases in which the area of sepsis was inaccessible required a mastoid operation, and were sent to hospital. There has not been a waiting list for several years. Every acute case can now be seen within a few days of its discovery. Chronic otorrhoea is almost absent from the elementary schools at Tottenham. The method which has been the basis of treatment for chronic otorrhoea is zinc ionization.—I am, etc.,

London, W.1, July 8th. A. R. FRIEL.

Glycosuria in Cerebro-spinal Fever

SIR,—We think the following case might be of interest:

On June 17th a boy of 13 travelled to the seaside, bathed, and returned home the same evening, apparently well. During the next day (18th) he vomited three or four times, complained of abdominal pain, but was better at 10 p.m. Half an hour later he became incoherent and drowsy, throwing himself about the bed.

At 4 a.m. on the 19th one of us was called in, and found a well-nourished boy in a condition of stupor, lying on his side with knees drawn up. His pupils were widely dilated, and ophthalmoscopic examination revealed no abnormality of retina or disk. The patient showed mental irritation when touched: he was incontinent of urine and the rectal temperature was 103°. Rigidity of the muscles of the neck was not present, but the boy strongly resented our attempts to move his legs. Urine was obtained through a catheter, and it was found that 8 drops were sufficient to reduce 5 c.cm. of Benedict's solution to an orange colour as soon as boiling point was reached, while the ferric chloride and Rothera tests for aceto-acetic acid were strongly positive.

We were unable to satisfy ourselves that the boy had suffered from thirst prior to the present illness, but the fact that the urine apparently contained more than 2 per cent. of sugar and also aceto-acetic acid made it seem improbable that the patient's condition was caused by meningitis ; therefore the diagnosis made was diabetic coma, onset occasioned by febrile catarrh, and our treatment during the day is recorded.

June 19th	Urine		Insulin Given		Temperature
	Sugar	Aceto-acetic acid			
6.30 a.m.	++	++	40 units (intravenous)	Glucose given in amount to correspond to insulin	98.6°
9 a.m.	++	++	40 units (intravenous)		101.0°
12 p.m.	trace	—	20 units (hypodermic)		100.4°
2 p.m.	trace	—	10 units ,,		—
6 p.m.	trace	—	5 units ,,		101.0°
9.30 p.m.	—	—	5 m adrenaline given		101.6°

At the end of this time the stupor had lightened, but there was no marked improvement. We thought that there were signs of hypoglycaemia at 8 p.m., but a large amount of glucose could then be taken by mouth. Next morning (June 20th) the patient developed twitching of the face muscles, and later general convulsions. The cerebro-spinal

fluid was found to be under pressure: it was cloudy, and contained pus cells and Gram-negative cocci. Serum was administered by the intrathecal and intravenous routes, but the boy died during the night of the 21st.

It is well known that glycosuria does occur in association with meningitis, but that such a high percentage of sugar should be found seems unusual. At any rate the occurrence was sufficient to cloud our judgement for a while, and encouraged us foolishly to disparage the significance of the clinical manifestations.—We are, etc.,

G. S. W. EVANS.
O. F. SYDENHAM.

Crewe, June 24th.

"Recurrent Volvulus of the Pelvic Colon"

SIR,—The article by Messrs. Ligat and Overend under the above title (*Journal*, July 1st, p. 7) will serve a useful purpose if it brings out the fact that elongation of the pelvic colon is, under certain conditions, a potent source of trouble. The authors stress the liability of such an elongated loop to torsion either on its transverse or longitudinal axis. This, however, is not the only way in which an elongated pelvic colon can give rise to trouble. When such a loop is loaded with faeces it prolapses into the pelvis, and by making the opening up of the pelvi-rectal angle difficult, and so preventing the passage of material into the rectum, it prevents the proper establishment of the defaecation reflex and induces a particular type of constipation.

In a paper in the *Lancet* (August 7th, 1926) I pointed out this fact, and gave details of four cases in which the symptoms were severe enough to call for excision of the loop, but without the actual occurrence of volvulus. I also pointed out that in children such a loop, full of material and prolapsed in the pelvis, might give rise to anaphylactic phenomena such as asthma, urticaria, etc. Since the publication of that paper I have had cause to resect the elongated pelvic colon loop in a further eighteen cases. With end-to-end anastomosis and the passage of a tube up the anus and through the junction there has been no mortality, and the relief to the patients has been striking. Mr. Ligat, in his classification of types of elongated pelvic colon, rightly separates the megasigmoid, in which there is gross dilatation of the lumen, from the other types, and attributes it to a neuro-muscular imbalance. Such a distinction is important, as while operations on the abdominal sympathetic may, and in some cases do, improve this type of case, they can be of no value in the more usual type of elongation without dilatation, to which they are sometimes erroneously and unfortunately applied.—I am, etc.,

E. G. SLESINGER.

London, W.1, July 2nd.

Cancer Families

SIR,—The family history of cancer reported by Mr. Harold Dodd in the *Journal* of July 1st (p. 36) is remarkable, and offers further evidence, if needed, of the influence of the inherited factor in the aetiology of this disease. I have myself been acquainted with a family in which the mother died of cancer of the breast, the eldest daughter died of visceral malignant disease (cancer or sarcoma), and the second daughter also died from cancer of the breast, after operation. Such cases as these, many of which are known, indicate the importance of investigating the existence of precancerous changes in the blood and tissues, which must exist if the disease is inherited, and must long precede any outward manifestation. In this way only can any real cure for cancer be discovered. There are, however, signs of a revival of research on these lines.—I am, etc.,

C. F. MARSHALL, F.R.C.S.

Westcliff-on-Sea, July 3rd.

Obituary

THE LATE SIR WALTER FLETCHER

Dr. JOHN H. HANNAN (pathologist, Hospital for Women, Soho) writes: May I, as a research worker of some ten years' standing, pay a last tribute to the memory of one who was no "defeatist" in medical research. Sir Walter Fletcher always insisted upon the importance of strict "control" work, and it was typical of him to ask me to investigate the possibility of spontaneous cure of carcinoma before publishing my investigations concerning the various therapeutic agents used in the treatment of this disease. In these days, when the public appear to be losing confidence in qualified medical practice, we are in urgent need of men like Sir Walter. So frequently we research workers find nothing but destructive criticism as a reward for our efforts, whereas in meeting Sir Walter one could always count upon a man who listened, criticized, offered constructive suggestions, and hoped that our work would reach a successful conclusion. Men like Sir Walter Fletcher are but rarely born, and I pay my final tribute in ancient language. Let us be among those who, like Sir Walter, "at once mark the goal"—*simul ultima signant*.

THE LATE DR. FORD ANDERSON

Dr. ROBERT CARSWELL writes: The obituary notice of Dr. J. Ford Anderson would be incomplete without a reference to what was undoubtedly one of the dominant motives of the last twenty-odd years of his life. As a member of the central committee of the British Medical Association which formulated the views of the Association and of the profession generally before the passing of the National Insurance Act of 1912 he has recorded how, when the passing of the Act was imminent, the profession rose like one man to protest against it—97 per cent. being the figure. And from that time to almost the day of his death he never ceased to evince the most active and uncompromising hostility against those revolutionary measures which so fundamentally altered the practice of medicine in his time. Like his friend the late Dr. Alexander Blackhall-Morison, he considered that the National Health Insurance Act brought in its train to the medical profession loss of independence, loss of scientific spirit, and also introduced a commercial outlook which had hitherto been foreign to the profession, and he liked to compare his fellow members of the National Medical Union, of which he was one of the founders, to those clergy (of whom his father was one) who seceded from the Church and faced hardship for conscience' sake in the Disruption of the Church of Scotland in 1843. Among a number of contributions to the journal of the above society a paper of his entitled "Reminiscences of Lister" is well worth perusal. It has been reprinted by the society in pamphlet form. Also an article on the Oath of Hippocrates (January, 1930), prefaced by a translation of the Oath and a reproduction of a third century head of Hippocrates, is of much interest. The extraordinary span, not only of time but of thought, covered by his life is brought home to the reader of the last-named article by his recollection of an old gentleman-cupper in a swallowtail coat who called at the ward door of the Middlesex Hospital daily in 1863 after the physician's visit, and said, "Any orders for me, Sister?" This, he says, was probably the last of the barber surgeons. These notes are written as an affectionate tribute.

Dr. WILLIAM BARRON, who died last month at his residence in Letham, Forfarshire, had been engaged for fifty years in general practice in that district. He received his medical education at Aberdeen, where he graduated M.B., C.M. in 1878, and proceeded M.D. in 1885. He was medical officer and public vaccinator for Dunnichen and Carmylle, and part-time medical officer for Forfar. Notwithstanding the claims of a widespread practice Dr. Barron found time to identify himself actively with the social life of the community. He took special interest in freemasonry, education, horticulture, and the

promoting of local athletic sports. He was a member of the British Medical Association. One of his colleagues, Dr. John Cable of Forfar, writes of him: "A man of simple tastes, wide sympathies, and modest bearing, he won and kept a large circle of friends. His intellectual acumen and wide mental vision often showed a touch of real genius. Behind a shyness and reserve of manner he could think great thoughts, and give them telling expression. A man of wonderful ability, strong tenacity of purpose, and intense human sympathy, he leaves behind him the fragrant memory of a noble life, which will always be cherished by everyone who knew him."

Universities and Colleges

UNIVERSITY OF LONDON

At a meeting of the Senate on June 21st it was resolved to institute a University Readership in Pharmaceutics, tenable at the College of the Pharmaceutical Society.

Professor A. E. Boycott, M.D., F.R.S., was reappointed Director of Research under the Charles Graham Medical Research Scheme for one year from September 1st.

The Regulations for the B.Sc. (General) Degree for Internal Students were amended by the insertion of the following after the first sentence on page 275 of the Red Book, 1932-3:

A student who, subsequently to passing the Intermediate Examination in Science as an Internal or External Student or being exempted therefrom under the Regulations for Advanced Students, had completed the course of study for the Second Examination for Medical Degrees, Parts I and II, as an Internal Student, may enter for the B.Sc. (General) Examination in Chemistry, Physiology, and Human Anatomy and Morphology, provided he has attended a further course of study for the B.Sc. (General) Examination extending over not less than one term and has complied with the Regulations in all other respects.

Professor J. M. Woodburn Morison, M.D., has been appointed representative at the Fourth International Congress of Radiology, to be held at Zürich from July 24th to 31st.

Sir Cuthbert Wallace, F.R.C.S., has been elected chairman of the Graham Legacy Committee.

The degree of Ph.D. in helminthology has been conferred upon R. K. Khanna; and M.Sc. in biochemistry upon N. F. Maclagan, M.B., B.S.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—E. T. Baker-Bates, A. B. Follows, W. W. Gerrard, B. T. J. Glover, J. H. Hughes, T. L. Hughes, E. L. Rubin.

M.B., CH.B.—*Part I* (1929 Regulations): *W. M. Beattie, *A. C. Brewer, *A. Cohen, G. V. Craine, Phillis Dingle, V. K. Drennan, B. J. Green, R. L. Hartley, Mary M. Hurst, G. E. Jones, Joan G. Jones, J. R. Jones, E. W. Knowles, H. S. Lanceley, Ethna W. Little, Sheelah Little, F. R. Neubert, W. Parke, *J. Pinkerton, J. G. Rogers, W. I. D. Scott, A. R. Sibbald, E. G. Watson. *Passed in Individual Subject:* C. F. Crampton, H. W. F. Croft, H. R. G. Davies, Clarice Hughes, A. G. H. Menzies, G. S. Robinson (Pharmacology and General Therapeutics). *Part A* (1924 Regulations): J. Morgan, T. H. Pierce. *Passed in Individual Subject:* H. H. L. Pentz (Pharmacology and General Therapeutics). *Part II* (1929 Regulations): A. B. Concanon, ‡Bessie Dodd, Jannett C. Evans, F. A. Frank, F. Harrison, ‡E. W. Jones, J. R. Jones, A. O. Karstaedt, Kathleen M. Kavanagh, †A. J. McCall, †Annie A. Merrick, L. Millward, Margaret F. Proctor, W. I. D. Scott, S. Shulman, ‡A. Speight, †S. L. Strange, R. P. Tong, J. K. B. Waddington, M. M. Wallis, Margaret C. Winter. *Passed in Individual Subject:* G. S. Robinson (Forensic Medicine and Toxicology).

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part B:* J. R. Burrows, T. P. Twomey.

D.P.H.—*Part II:* §P. L. C. Carrier, P. P. Fox, D. O. Hughes.

* Distinction in Pharmacology and General Therapeutics.
† Distinction in Forensic Medicine and Toxicology.
‡ Distinction in Public Health.
§ With Distinction.

The following awards have been made in the Faculty of Medicine: *John W. Garrett International Fellowship in Bacteriology*, Dr. E. R. Jones. *Robert Gee Fellowship in Human Anatomy*, Dr. A. S. Kerr. *Holt Fellowship in Physiology*, Dr. G. R. Griffith. *Holt Fellowship in Pathology*, Dr. G. A. C. Lynch. *Johnston Colonial Fellowship in Biochemistry*, Mr. J. Devine. *Lady Jones Research Fellowship in Orthopaedic Surgery*, Dr. W. S. Creer. *John Rankin Fellowship in Anatomy*, Dr. W. Bullock. *Thelwall Thomas Fellowship in Surgical Pathology*, Dr. H. G. Hanley. *University Graduate Scholarship in Medicine and George Adami Prize in Pathology*, Mary M. Hurst. *Junior Lyon Jones Scholarship*, G. L. Manson; *proxime accessit*, C. J. Williams. *Samuels Memorial Scholarships:* (Medicine) Dr. J. Libman, (Surgery) Mr. M. Silverstone, (Obstetrics and Gynaecology) Mr. T. N. A. Jeffcoate. *William Mitchell Banks Bronze Medal*, R. R. Hughes. *Silver Medal in Forensic Medicine and Toxicology*, A. J. McCall; *proxime accessit*, Annie A. Merrick. *Kanthack Medal (Pathology) and Silver Medal in Pharmacology*, A. C. Brewer. *Owen T. Williams Prize*, J. D. Hay.

UNIVERSITY OF SHEFFIELD

The following candidates have been approved at the examinations indicated:

M.D.—Constance N. Jenkinson.

FINAL M.B., CH.B.—*Part II:* F. R. P. O'Hara-Proud (with second-class honours), L. Botros, R. M. Edelman, Ursula S. Nutt, S. J. Rabinowitz, F. Rodgers, D. C. Waddy.

VICTORIA UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—*‡T. F. Heslop, W. Bradley, T. W. Brindle, Edna Circuitt, R. K. Clough, E. Davis, P. R. Evans, W. G. H. Hughes, J. F. E. Johnson, R. Judson, A. R. Kennedy, N. Launer, J. C. Morris, R. Nightingale, H. C. Palin, D. C. Racker, Florence C. Read, L. Rich, W. Sagar, J. Schofield, N. Shlosberg, J. N. Strauss, †E. Vernon, C. S. Walker, J. L. D. Williams. *(Part I) Forensic Medicine and Hygiene and Preventive Medicine:* H. Baker, A. S. Bullough, W. P. Cargill, N. Copeland, P. D. H. Cran, J. Curry, Annie M. Dawson, I. H. Flack, N. Goldstone, C. Hancock, A. Harris, H. Harris, H. Hempling, B. P. Hill, J. A. Hobson, F. Janus, R. H. Jobson, S. H. O. Jones, N. F. Kirkman, D. H. Mackay, A. E. Martin, Barbara de V. Mather, E. L. Patterson, Winifred Porter, W. K. Spencer, C. Tetlow, A. McN. Tomlinson, J. A. A. L. Woodhead. *Pathology and Bacteriology:* J. Boardman, Monica D. Boyle, G. D. Harthan, R. E. Hirson, T. S. B. Kelly, H. D. B. North, J. Starkie. *Pharmacology:* J. Cohen, F. P. Ellis, S. Franks, W. E. Kershaw, A. L. Robertshaw.

* With second-class honours. † Distinction in Obstetrics.
‡ Distinction in Medicine.

On July 8th women graduates of the Victoria University of Manchester gave a reception to celebrate the fiftieth anniversary of the admission to Owens College of women on the same terms as men. In commemoration of this jubilee the University conferred the honorary degree of D.Sc. on Dr. Harriette Chick, C.B.E., of the Lister Institute of Preventive Medicine.

UNIVERSITY OF BRISTOL

The Council of the University has appointed Miss Doris May Stone, M.D., D.Ph., junior pathologist in the Department of Preventive Medicine.

UNIVERSITY OF ABERDEEN

At the graduation ceremony on July 5th the honorary degree of LL.D. was conferred upon William J. Mayo, M.D., D.Sc., LL.D., F.R.C.S., Chief of Staff of the Mayo Clinic, Rochester, Minnesota, U.S.A.

The following degrees were conferred.

M.D.—*J. B. Ewen, *D. C. Robb, *R. D. Stuart, *R. Sutherland, J. A. Dawson, R. H. G. H. Denham, R. G. Henderson.

M.B., CH.B.—I. A. Anderson (first-class honours and passed Final Medical Professional Examination with distinction), A. M. Rennie, J. R. S. Third.

* Awarded commendation for thesis.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE

On October 28th, 1932, the Court of Governors of the University of Durham College of Medicine, Newcastle-upon-Tyne, informed Lord Londonderry, Chancellor of the University, that they considered it advisable that he should institute an independent inquiry into the administration and constitution of the College. The Chancellor also communicated with the Council of the College asking their assistance and co-operation in the matter, and at his invitation Sir Amherst Selby-Bigge held an inquiry at Newcastle early this year. Sir Amherst Selby-Bigge has now reported his findings to the Chancellor. Notwithstanding a statement by Lord Londonderry to the Newcastle *Evening Chronicle* that it is a private report and will not be published, summaries and extracts have appeared in that and other newspapers during the past few days. The report, according to the *Daily*

Telegraph of July 10th, "declares that complaints of maladministration brought against College Council were not substantiated. The hope is expressed that, the inquiry having afforded an opportunity for expression of views and ventilation of discontents, those interested in or concerned with the College will now put aside all disputes and concentrate on promoting its welfare. A definite charge of maladministration was brought against the Council, the report states, in respect of its treatment of Professor H. J. Hutchens (Heath professor of pathology and bacteriology). It was urged that the Council's action was not bona fide, reasonable, fair, and in accordance with university usage. Regarding that complaint, in my own opinion, states Sir Amherst Selby-Bigge, the allegation of mala fides is not established. It must be remembered that the Council's act was not to remove him as professor, but to terminate his engagement as lecturer in the College, leaving him in possession of the post of Heath professor of the University. It is not for me to say whether or not the professor was well advised in rejecting the terms of retirement offered him."

UNIVERSITY OF DUBLIN

At the degree ceremony in Trinity College on July 5th, presided over by the Vice-Chancellor, Sir Thomas Moloney, the honorary degree of Sc.D. was conferred on John Scott Haldane, M.D., F.R.S., Fellow of New College, Oxford, and Honorary Professor and Director of Mining Research in Birmingham University.

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

M.D.—S. A. Clark, N. M'I. Falkiner, Marie A. Hadden, Hope Trant.

M.CH.—P. A. Hall.

FINAL MEDICAL EXAMINATION.—*Part I, Materia Medica and Therapeutics, Pathology and Bacteriology:* *W. A. Gillespie, D. S. Quill, H. Pringle, H. J. Anderson, G. W. Paterson, R. L. Oakes, M. Marmelstein, R. J. Kellett, R. H. Pratt, J. Sorett, W. Charney, J. R. M'Elroy.

PART II.—M.B.—*Emily M. Booth, D. M. Mitchell, H. D. Clarke, M. J. Horgan, H. R. Davies, D. M. Ahern, W. H. E. M'Kee, J. S. M. Pringle, E. C. Rowlette, Marjorie R. E. Boyd, H. S. Barber, Esther C. L. Howe, W. P. Griffin, N. Jackson, M. J. Roberts, J. S. Ruddell, E. S. A. Ashe, J. Bell, Ethel S. Wilson, Mary J. Ahern, G. S. S. Harty, J. K. Lavery, Agnes Monteiro, C. W. N. Smiley, E. Howitt, Una M. Irvine, Eileen M. Kennedy, I. T. F. Wiley, J. T. M. Gregg, A. Dolphin.

B.CH.—*D. M. Mitchell, M. J. Horgan, D. M. Ahern, Emily M. Booth, H. D. Clarke, H. S. Barber, H. R. Davies, Marjorie R. E. Boyd, Ethel S. Wilson, W. P. Griffin, J. K. Lavery, W. A. Clarke, H. S. Perrot, Eileen M. Kennedy, C. W. N. Smiley, J. S. Ruddell, M. J. Roberts, E. C. Rowlette, W. T. Bermingham, Una M. Irvine, H. T. Ryan.

B.A.O.—E. E. O'Malley, Mary E. Mansfield, Helena G. G. Bennett, Ethel S. Wilson, Sheila K. Henderson, M. H. Cosbie, B. E. W. Aldwell.

D.P.H.—*Part II (Old Regulations):* Frances E. O'Connor. (*New Regulations*): Marjorie L. Campbell, E. S. Duthie, W. E. Holmes, C. H. Adderley, J. V. Ryan, A. A. Lisney.

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS.—M. M. El Hennawy, V. Enok.

* Passed on high marks.

The following prizes have been awarded: *Cunningham Memorial Medal and Prize*, J. H. A. Jewell. *FitzPatrick Scholarship*, D. M. Mitchell. *John Mallet Purser Medal*, E. W. L. Thompson. *Medical Scholarship: Physics, Chemistry, Botany, and Zoology*, R. E. Taylor; *Anatomy and Physiology*, B. E. O'Brien. *Stewart Medical Scholarships: Physics, Chemistry, Botany, and Zoology*, T. L. Lawson; *Anatomy and Physiology*, E. W. L. Thompson. *Medical Travelling Prize and Banks Medal*, J. A. Wallace. *Medical Travelling Prize (special) and Banks Prize*, A. A. Cunningham. *De Renzy Centenary Prize*, Marjorie L. Campbell. *Aquilla Smith Prize and Walter G. Smith Prize*, W. A. Gillespie.

NATIONAL UNIVERSITY OF IRELAND

A meeting of the Senate was held on July 6th, under the chairmanship of the Chancellor, Mr. Eamon de Valera.

The reports of the examiners on the results of the summer examinations were considered, and passes, honours, etc., awarded in connexion therewith.

The following appointments in University College, Cork, were made: *Lecturer in Medical Jurisprudence*, M. J. Riordan, M.B., B.Ch., M.A.O., F.R.C.S.I.; *Lecturer in Mental Diseases*, B. F. Honan, L.R.C.P. and S.I., D.P.M.

A report from Dr. Denis J. Coffey, president, University College, Dublin, and representative of the University on the General Medical Council, was considered and approved.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Election to the Council

On July 6th five Fellows were elected into the Council to fill the vacancies occasioned by the retirement in rotation of Lord Moynihan, Sir John Lynn-Thomas, Mr. A. H. Burgess, and Mr. V. Warren Low, and by the death of Sir Percy Sargent. The result of the poll was as follows:

	Votes	Plumpers
Sir CHARLES GORDON-WATSON, K.B.E., C.M.G. (St. Bartholomew's)	785	 29
ARTHUR HENRY BURGESS (Manchester) ...	773	 12
HENRY SESSIONS SOUTTAR, C.B.E. (London)	579	 24
REGINALD CHEYNE ELMSLIE (St. Bartholomew's)	553	 8
LEONARD RALPH BRAITHWAITE (Leeds) ...	547	 28
Charles Max Page	527	 8
Claude Howard Stanley Frankau	444	 24
Cyril Alfred Rankin Nitch	439	 4
Duncan Campbell Lloyd Fitzwilliams ...	415	 27
Alfred William Sheen	384	 3

In all 1,420 Fellows voted, including 253 resident out of Great Britain and Ireland; in addition eight votes were found to be invalid.

Mr. Braithwaite becomes substitute member of Council for Lord Moynihan until 1935. Mr. Elmslie becomes substitute member of Council for the late Sir Percy Sargent until 1938. Sir Charles Gordon-Watson, Mr. Burgess, and Mr. Souttar are elected for the full period of eight years.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly business meeting of the College, held on July 7th, the following candidates who had passed the Final Professional Examination under the conjoint scheme with the Royal College of Surgeons in Ireland, were duly admitted Licentiates in medicine and midwifery of the College—namely: J. S. Barr, C. N. Carroll, T. W. Conlin, W. P. J. Dunsmore, P. W. Griffin, T. Healy, F. Jupe, P. J. Kelly, R. J. F. Matthews, P. J. Moore, D. McAuliffe, Phoebe I. McKernan, D. E. O'Driscoll, P. S. O'Golain, J. T. O'Hanrahan, P. V. O'Reilly, J. J. Pierse, H. R. Rogers, Kathleen M. N. Vickers, A. E. Warren.

The Services

BOMBARDMENT OF MEDICAL UNITS

The seventh International Congress of Military Medicine and Pharmacy, held recently in Madrid, considered the constantly increasing dangers of bombardment to which medical units and fixed hospital establishments are likely to be exposed, and adopted the following recommendations. (1) That hospital areas be reserved for the exclusive requirements of the medical service and placed under the sign of the Red Cross. (2) That regulations be introduced as early as possible to determine the conditions of application of this recommendation in the Geneva Convention for the amelioration of the lot of the sick and wounded in the armies in the field.

DEATHS IN THE SERVICES

Major Percy Reginald O'Rourke Phillips, R.A.M.C., died of pneumonia at York Military Hospital on June 15th, aged 42. He was born on March 25th, 1891, was educated at Highgate School, at Pembroke College, Cambridge, where he graduated B.A., and at St. Thomas's Hospital, and took the M.R.C.S. and L.R.C.P.Lond. in 1913. He held a temporary commission as lieutenant in the R.A.M.C. during the war, on April 28th, 1916, and subsequently a permanent commission from the same date, and attained the rank of major on April 28th, 1928. He served in the war of 1914–18, and, since the war, in the Egyptian Army, and at Shanghai.

Lieut.-Colonel John Leopold Poynder, Madras Medical Service (ret.), died at Bickington Lodge on June 26th, aged 78. He was the son of the Rev. Leopold Poynder, was born at Bareilly on March 11th, 1855, was educated at Bart's, and took the L.R.C.P.Lond., the M.R.C.S., and the L.S.A. in 1877. Entering the I.M.S. as surgeon on October 31st, 1879, he became lieutenant-colonel after twenty years' service, and retired on December 12th, 1909. Most of his service was spent in civil employ in the Central Provinces. On June 26th, 1902, he received the Kaisar-i-Hind medal (first class).

Medico-Legal

ALLEGED NEGLIGENCE BY "NATURE-CURER"

Patient's Claim for Damages

Before the Lord Chief Justice and a special jury on July 4th, 5th, and 6th, an action was heard in which Mrs. Eleanor May Walton of New Cavendish Street, W., claimed damages from Mr. Stanley Lief of Park Lane, W., and Natural Healing, Ltd., of Champneys, Wigginton, Herts, for personal injuries alleged to have been caused by the negligence of the defendants and for breach of warranty to cure her of lupus erythematosus. The plaintiff's case was that in February of last year Mr. Lief, who directs and substantially owns the sanatorium at Wigginton, warranted that he was in a position to cure her completely if she undertook his treatment. She remained in his sanatorium for five weeks, and afterwards underwent some further treatment from him at Park Lane, but with the result that her face and scalp became permanently disfigured. She complained that she was improperly treated by radiations, and that the diet given in the sanatorium was insufficient.

Mrs. Walton, in reply to Sir Patrick Hastings, K.C., her counsel, stated that she had suffered from lupus erythematosus since 1921. In 1931 there remained, after treatment at the hands of various doctors, one or two scars on her face, but none on her scalp. Since her treatment by Mr. Lief the disease had extended and covered the whole of her scalp and both sides of her face. She paid twelve guineas a week at the sanatorium. She was kept on a low fruit diet, and never had a real meal during the five weeks of her stay. Light treatment was started after she had been there seventeen days. The last session of light treatment at Park Lane left her in great pain, and patches appeared around the eyes.

Lord Horder stated that he saw the plaintiff in April last. In lupus erythematosus the administration of irritants was to be avoided. Ultra-violet rays were irritating unless applied in very small doses. *X* rays in very small doses might have a healing effect, but the measurement of the dose would require to be made extremely carefully. The plaintiff's was an unfortunate type of case to get into the hands of an inexperienced person. Starvation treatment was a bad preface to any local treatment, as it might make the patient more susceptible to over-stimulation. He was not prepared to agree that one of the fruitful causes of lupus erythematosus was intestinal poisoning, though, of course, the cleansing of the intestinal system was good in all diseases. Lupus erythematosus might flare up without any apparent reason, but his impression was that the application of ultra-violet rays in this case had made the disease active.

Mr. Norman Birkett, K.C., for the defence, said that he proposed to call medical evidence to show that burning by ultra-violet treatment was quite impossible. This disease was one about which medical science knew little; its cause was unknown, and it was not known why it occasionally flared up.

Mr. Stanley Lief, in the witness-box, described himself as an osteopath and naturopath, who had come to this country from America in 1914. He was questioned as to certain initials following his name. "M.N.C.A. meant "Member Nature Cure Association," of which he was president; "D.O." meant "Doctor of Osteopathy," "D.C." "Doctor of Cheiropathy," and "N.D." 'Naturopathic Doctor," these three degrees having been conferred by colleges in Chicago. There was an average of sixty-five resident patients at Champneys. When he saw Mrs. Walton he told her that her condition was due to impure blood and intestinal toxaemia, and that it would be well worth while to attempt purification of the system. The question of guaranteeing a cure was never raised. The light treatment was given from a mercury vapour lamp at 30 in. from the face for one minute at first, and later in increasing doses up to eight minutes. When he treated her at Park Lane he used a Kromayer lamp, 1½ in. from the face. In cross-examination he said that Natural Healing, Ltd., the defendant company, had about a dozen shareholders; he owned more than half the shares. A newspaper, *Health for All*, was the property of the company. It was suggested to him that in this periodical it was stated that no disease was incurable at Champneys, to which Mr. Lief replied that cancer, tuberculosis, and paralysis were excepted.

Evidence in support of the defendant's case was given by Mr. Sidney Alfred Cullum, osteopath, formerly Mr. Lief's assistant, who said that the plaintiff made good progress while at Champneys, and by Dr. William Kerr Russell and Mr. J. E. R. McDonagh, F.R.C.S., the latter stating that the disease from which the plaintiff suffered might be beneficially treated by ultra-violet rays, though he would not himself now use that treatment because other treatment would achieve better results. The disease had a tendency to flare up for undiscoverable reasons, though he did not think ultra-violet rays would cause it to do so. He would not have advised starvation diet for a month.

The jury were absent for more than three hours considering their verdict. They found for the plaintiff on the question of representation and warrant that the defendant was in a position to effect a complete cure of the plaintiff's disease, and assessed damages at the amount of the bill—namely, £123 16s. They also found for the plaintiff on the question of negligence in treatment, and awarded one farthing damages. They added the rider that all institutions of this character should be subject to supervision by some Government authority. Judgement was entered for plaintiff accordingly, and the question of costs reserved for future argument.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons has this week discussed the Estimates for Education, Agriculture, the Colonies, and the Foreign Office. On the last a debate arose on the World Economic Conference. The Samaritan Free Hospital Bill, which has passed the House of Lords, was read a second time by the House of Commons on July 10th. The committee stage of the Road and Rail Traffic Bill was completed in Standing Committee.

The Nurses Registration Act (1919) Amendment Bill, the Registration and Regulation of Osteopaths Bill, and the Shops Act (Amendment) Bill have been withdrawn.

In the House of Lords the University Degrees Bill was put down for second reading on July 13th, and the Manchester Royal Infirmary Bill for committee on the same date. The Local Government and Other Officers Superannuation (Temporary Provisions) Bill received a first reading on July 6th. The Cancer Hospital (Free) Bill was returned to the Commons, and the Road Traffic (Compensation for Accidents) Bill was reported from a committee and put down for consideration by the House on July 18th. On July 11th the Earl of Lucan presented the Firearms and Imitation Firearms (Criminal Use) Bill, which was read the first time.

On July 6th, after a division, the House of Commons approved the special grant of £440,000 to local authorities in England and Wales for out-relief expenditure. In moving the grant Sir HILTON YOUNG said a permanent scheme of relief for these authorities would be introduced in the present session.

Administration and Cost of Health Services

On July 7th Sir HILTON YOUNG presented the estimates of the Ministry of Health for the year ending March 31st, 1934. He said that, disregarding the vote of £39,000,000 for block grants to local authorities, the actual Vote of his Department was £19,000,000, a decrease of £135,800. An increase of £250,000 in housing grants was offset by a decrease of £375,000 on the Health Insurance Vote. In 1932 £120,000 had to be voted for the influenza epidemic. That epidemic had not returned, and the expenditure was not required this year. The administration of the Department showed a decrease of £2,800, although the staff of the Ministry was increasing on account of the constantly expanding health services. In administration of health services

the measures taken to ensure the future were the most important part of the work. He instanced the difficult question of the sterilization of the unfit. The expense of the mental deficiency service was enormous, and the disadvantage of mental deficiency to national life still graver. Another example of work in which they were looking ahead was the setting up of a new consultative committee of the twenty-eight London borough councils and the City Corporation to co-ordinate their interests with those of the localities where the London refuse dumps were situated. Another concerned the standards of construction in the public institutions of large cities, such as hospitals, workhouses, mental homes, and so on. It was necessary for efficiency and economy that there should be some normal standards for the construction of these buildings, and he had started an inquiry which would establish the standards and provide permanent machinery for keeping them up to date. To the actual work of town and country planning the Act passed last year had given a great impetus, and the Department was now ready to proceed without delay with any scheme which came along. The end of the epoch of general subsidies for housing had been accompanied by increased activity in the building trade. There had been practically no drop in the production of houses during the transition to the period of private enterprise. The number of houses approved in the first five months of 1933 was 17,800, a little more than in the first five months of 1932. For the twelve months to April 1st, 1933, 200,500 houses, assisted and unassisted, had been produced. Local authorities were making plans for a five-year campaign against slums, and had been asked to produce these plans before the end of September. Stoke-on-Trent, which had recently cleared houses at the rate of eighteen a year, now had a scheme to clear 3,612 houses, at the rate of 720 a year. A Minister of Health must be alert for symptoms that the long depression was beginning to tell on the health of the country. The result of a widespread inquiry showed that unemployment and insecurity of employment, particularly in the case of the young, undoubtedly told on the mental health. On the physical health of the nation he could give a different account. For information on nutrition the Ministry of Health had the school medical officers, the medical officers of health, and the regional medical officers in connexion with the health services, the inspectors of the Ministry, and, lastly, the statistics of mortality and morbidity. The mortality for the whole country and for the depressed areas was steadily declining, which testified to the maintenance of the general health of the people. There was an encouraging decrease in the death rate among children. Since 1910 the infant mortality rate had been halved—a marvellous achievement for the new welfare services and the medical profession. He found no evidence of increased morbidity in the country as a whole. Morbidity statistics for pneumonia and bronchitis were going down. In tuberculosis—most important as a barometer of health and nutrition—the death rate per million for all forms fell from 896 in 1931 to 838 in 1932. Owing to the success of the health services for children there was a marked fall in the incidence and mortality of non-pulmonary tuberculosis. The statistics for maternal mortality were matter for dissatisfaction. This mortality was due to particular diseases and disorders at the time of the birth. The mortality last year was 4.11, and this year 4.21. To deal with this question better education of the mother and of the midwife was necessary. The Ministry constantly pressed local authorities to raise the standard of the maternity services. The number of infant welfare centres was increasing, and ante-natal centres were conspicuously increasing. He had seen the reports of medical officers of health and regional medical officers on the actual state of the physical health of the country and of the unemployed, with special relation to malnutrition. The health of the country was normal in spite of the depression. Sir Hilton advised local authorities, when looking for malnutrition in a family, to look at the woman. At such times as these there was a special responsibility for watching the health of the mothers of the country. In these bad times the public medical services for the insured, for maternity, for infant welfare, for the school child, for general and special nursing and health visitation, and for the treatment of special diseases such as tuberculosis, proved of inestimable service to the country. Turning to economy Sir Hilton Young said local authorities had carefully surveyed the objects of outlay and the efficiency of the services, and this had resulted in useful and important economies without sacrifice of efficiency.

Opposition Criticism

Mr. GREENWOOD approved what the Minister said about the measures taken for hospitals and for town and country planning, but he thought there should have been a larger output of houses. Concerning nutrition the House should consider the economic facts. A report by the Sheffield Social Committee Council showed that one-fifth of the working-class households in Sheffield were living below or on the poverty line, with resources insufficient to cover minimum requirements in respect of rent, food, clothing, heat, light, and household utensils. In course of time the shortage of the necessities of life would show sorry results, although not now reflected in the morbidity rate or the death rate. Figures given by Sir George Newman on the health of the school child showed an incidence of malnutrition per 1,000 inspections of 9.5 in 1925, 10.6 in 1930, and 11.2 in 1931.

Medical Benefit and the Unemployed

Mr. DINGLE FOOT said the Ministry of Health should now be ready to meet the difficulties at the end of this year when persons who had been unemployed for two and a half to three years would lose their entitlement to medical benefit. Many of these persons—he believed they numbered about 100,000—would continue to go for treatment to the panel doctors they had been consulting. These doctors would be in a difficult position. The change would simply transfer the burden from national to local shoulders. Instead of the cost of medical treatment for these people being borne on national health insurance funds it would be borne by public assistance funds, and the principal burden would fall on the distressed areas. He suggested that there should be a transitional class for health insurance as for unemployment insurance. Mr. TINKER suggested that besides preventing the growth of refuse dumps round London the Minister should bring about the removal of the chemical heaps round Widnes and St. Helens, and the colliery dumps of mining areas, the fumes from whose spontaneous combustion were often almost unbearable.

Mr. BUCHANAN suggested that part of the national health insurance reserve fund should be used to keep within insurance those who would otherwise pass out of it. To tell such persons that they must have recourse to the Poor Law for a doctor would be forcing them to go to practitioners in whom they had no faith. In many cases doctors who had been associated with a man or a man's family for a long time would do the work for nothing, but it was not fair that members of the medical profession should be asked to undertake a national burden as an individual one. No hardship would be done to any approved society which used a proportion of its surplus to keep these people within the insurance limit.

Hospital Co-operation

Sir FRANCIS FREMANTLE said that the great mass of houses which were now going up were not of the low rental type which would meet the needs of the poorer-paid workers. He hoped the Government could say something on the prospect of a report from the committee which, with Lord Marley as its chairman, was inquiring into the future development of existing towns, or the development of new towns in the form of garden cities. He agreed with the contention of previous speakers that it was a mistake if persons, having exhausted certain rights under the national health insurance, had to leave a panel doctor and go to a Poor Law doctor. Why the distinction between the panel and the Poor Law when both were administered by one Department? Was it not possible to fuse the schemes for the provision of medical benefit, whether under insurance or public assistance? From the professional point of view it would be infinitely better to have a system under which one medical man would look after all the members of a family. They could then decide whether he should be paid from the Insurance Fund or from some other fund. Sir Francis asked if there was any sign of the co-operation which was promised under the Local Government Act of 1929, between the voluntary hospitals and hospitals under local authorities. Rumours reached him that the co-operation between the larger voluntary hospitals of London and the London County Council was little more

than nominal. He hoped the Ministry of Health would bring pressure to bear on those places where co-operation had not been brought about. At one of the smaller hospitals near London he found a scheme under which two of the hospital nurses were engaged in district nursing for the whole district. They dealt with out-patients at the hospital, followed up the cases, and also did the ordinary work of district nurses. The result was a great saving. He hoped the Department would see how far this idea could be pressed forward. The time had come for co-ordination between the voluntary hospitals and the district nursing movement, especially under the Queen's Institute. Co-ordination was required between the nurses' pensions schemes of local authorities and of the voluntary hospitals. The subject would be brought forward by those who represented the nursing profession. A further opportunity for co-ordinating and fusing the health services came under the Local Government Act, 1929. Why should the same local authority have different sets of officials to manage different branches of the health services? The education clinic, the hospital services, the tuberculosis service, were watertight compartments, each under a different committee, with practically independent officers and organization. The Minister would have to appoint a further committee with a view to a closer fusion of services under the same local authorities. A special investigation was required, going right back to what were the real requirements in the training and education of the medical services. The Minister should urge upon the General Medical Council, through his own representative, the fact that in training attention was still directed too much to the production of practitioners for the treatment of disease and not nearly enough to the training of medical men in the prevention of disease.

Dr. O'DONOVAN joined issue with the suggestion that practising doctors were not concerned with preventive medicine. His predecessors in medicine saw the need for preventive medicine, but had first to force on the people and the Government the idea that the care of the people's health could be organized. A big hospital with many beds was a sign of failure to conserve health. What was needed was not more beds but more brains applied to the preservation of the people's health and the development of out-patient departments staffed by the best physicians. He asked for more research on maternal mortality. Any action which crystallized present practice might be action in the wrong direction. He also questioned the efficiency of infant welfare centres and other clinics. They acted as nets for sorting out the sick, and difficult cases were at once sent to the voluntary hospitals for diagnosis and treatment. The consultants of London and the other great centres added the touch of efficiency which made the clinics worth while. Infant welfare centres should not claim the whole drop in infant mortality as their work. Others saw that the people had clean food and clean houses, and the herds of cows were less tuberculous. There must be some means by which proposals affecting the health of the people and the work of the medical profession could be discussed with the organized profession. He hoped the Minister would give directions that medical officers of health should have facilities for going to professional meetings to discuss with the clinicians matters that affected public health. Wing-Commander JAMES congratulated the Minister on the appointment of the Departmental committee to investigate sterilization. He asked what steps the Department took, in the course of its duties, to collect information about heredity. In the case of discharged mental defectives, what information did the Ministry collect on subsequent procreation and what the children were like? He had been told that children in special schools, when they went out into the world, tended to marry earlier than normal persons and to have a number of children. That sort of question should be under the permanent review of the Department, with the inheritance of blindness, and the results of marriage of the deaf-and-dumb. Mr. RHYS DAVIES reverted to the report by the medical officer of health for Stockton-on-Tees, to the effect that when slum-dwellers were moved into a new housing estate the infant mortality rate increased, because the people so removed and paying higher rents had not the wherewithal to buy the necessary food supplies. The experience of Manchester with people taken from slumdom belied everything that had happened at Stockton. They had not the infant mortality rates of England and Wales for 1932, but those of Scotland showed an increase of 4 per 1,000. Was the Minister of Health right in saying that infant mortality rates in England and Wales were not increasing?

Government Reply

Mr. G. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, replied to the debate. He told Mr. Rhys Davies that the infant mortality rate of 1932 was 65, the second lowest rate since the war. The Stockton report on slum clearance and health referred to 700 tenants under an old scheme, who had to pay rents higher than they had paid before. Under present conditions rents for alternative accommodation compared favourably with those paid in the slums. Reports from six cities showed that the death rate on the new estates had halved in some cases, and the infant mortality rate was one-third of its previous figure in the slums. All the health officers reported greater health of the children and brighter looks. In the Stockton case 90 per cent. of the new tenants were unemployed. The 80,000 persons who, at the end of this year, would come out of medical benefit had been generously treated. Some of these men had received thirteen years' free insurance as regards sickness benefit, and fourteen years' free insurance as regards medical benefit. They could not, in law and morality, treat 80,000 persons differently from everybody else. He did not think it a hardship to have to go to another doctor. In a large number of places the district medical officer was also a panel practitioner. If a local authority submitted a scheme whereby the district medical officers, who were also panel practitioners, could attend these men, and the men could have choice of doctors, the Minister would consider it. He thanked members who had helped in the slum clearance campaign. Since the war and until 1930 demolition was at the rate of about 1,000 houses a year. Since 1930 the rate had increased to 3,000, and now demolition in England and Wales was at the rate of 12,500. He hoped that next year, on a conservative estimate, the clearance would be not less than 24,000, and that a five-year programme would give healthier living conditions to 500,000 persons. Reverting to Mr. Tinker's suggestion about the clearance of industrial refuse tips and slag heaps, Mr. Shakespeare said the problem of dealing with these was difficult. He could not say whether it would come under town planning.

Progress was reported and the debate ended.

Increase in Silicosis and Miners' Nystagmus

On the Estimate for the Mines Department Mr. ERNEST BROWN, Secretary for Mines, said the Department had to turn its mind to the question of underground lighting, and whether it could do anything to reduce the casualties caused by falls of roof. The figures for fatal accidents in British mines were: 859 killed in 1931, and 881 in 1932. The number seriously injured in 1932 was the lowest on record, being 3,212, compared with 3,305 in 1931 and 4,163 in 1928. Non-fatal accidents involving more than three days' disablement were 161,000 in 1928, 141,000 in 1931, and 125,000 in 1932. Over the period from 1922 to 1931 10,229 persons were killed in mine accidents, 2,239 of these by haulage accidents underground, and 5,092 by falls of ground. Accidents from explosions of fire-damp and coal dust were 5 per cent. Injuries in the same period totalled 1,600,000. Surface accidents caused 127,614 injuries; miscellaneous accidents underground, 524,951; haulage underground, 406,137; and falls of ground, 555,111. The Mining Association and National Association of Colliery Managers has endorsed a report which recommended general and prompt action to improve lighting in mines. The action to be taken on that report had not been determined. Reports on pit trials of an automatic gas detector were being printed. Mr. PARKINSON said there was a case for the mines inspectorate to take up the whole question of the ventilation of mines. There was also a case for closer supervision of defective timber in mines. Mr. R. T. EVANS said there were occupations in anthracite mines which were not in the schedule of occupations for which compensation could be obtained for silicosis of the lungs. A new Order was needed, and also the compulsory use of some process for damping the drill during boring, as in South Africa. This industrial disease could be prevented and should, in any case, be compensated. Mr. TOM SMITH said

the most welcomed improvement in the pits was better lighting. Miners used to work in a light of 0.75 to 1 candle power. Now electric lamps gave beween three and four candle power; that was a useful improvement, because the number of victims of miners' nystagmus was on the increase. In the last eleven years there were 34,646 certified cases of nystagmus in this country. In 1922 4,047 miners were certified; in 1930, 3,248. Now that oil lamps had been replaced by electric lamps the use of an automatic gas alarm should be compulsory.

Replying to the debate Mr. ERNEST BROWN said he did not think a new Safety in Mines Act was required. Under that Act new regulations were made continuously. It might be advantageous to have a Consolidating Act. On the automatic gas alarm he reserved judgement.

The discussion was adjourned.

The Public and Mental Hospital Treatment.—In reply to Mr. C. Edwards, Sir HILTON YOUNG stated that he did not think it necessary to circulate a pamphlet setting forth the rights of the public concerning the treatment of patients in mental hospitals, including the right to apply under Section 79 to the Visiting Committee for the discharge of patients to the care of friends. The situation as regards Section 79 had already been met by the existing Rule, which required the managers of every institution, on the admission of every rate-aided person, to send a notice embodying the substance of that section to all persons who were named as relatives or friends of the patient in the statement of particulars accompanying the reception order.

Sewage Disposal Schemes.—Replying to Sir T. Rosbotham Sir HILTON YOUNG said he desired that every effort should be made by local authorities to carry out needed schemes of sewerage and sewage disposal. A number of county councils were already contributing towards the cost of schemes in rural and urban districts under the powers conferred on them by Section 57 of the Local Government Act, 1929, and he earnestly hoped that in suitable cases all county councils would use their powers to the full. He did not think that a special circular on the subject was called for at the moment, but would take other means of making the position known.

Glucose in Food.—Sir HILTON YOUNG told Captain Balfour on July 6th that he was advised that there was no public health objection to the use of pure glucose as a foodstuff. It was, however, generally considered that jam was better made with cane sugar.

Medical News

The official dinner of the International Paediatric Congress will be held at the May Fair Hotel, London, on Friday, July 21st, at 7.30 o'clock, with the President, Professor G. F. Still, in the chair.

Founder's Day at Epsom College will be celebrated on Saturday, July 29th, under the chairmanship of the president, Viscount Burnham. Professor D'Arcy Thompson, F.R.S., will give away the prizes and open the new biology building at 3.30 p.m. Other events of the day are the annual cricket match (The College *v.* Old Boys), service in chapel at noon, tea on the cricket ground, and a performance of *Merrie England* by the Choral Society at 8 p.m.

The annual luncheon of the Irish Medical Schools' and Graduates' Association will be held at the Hibernian Hotel, Dublin, on Wednesday, July 26th, at 1 p.m. The chair will be taken by the president, Dr. T. Gillman Moorhead. Tickets (6s.) may be obtained by members of the association resident in England from the provincial honorary secretary, Dr. Falkland L. Cary, 67, King's Road, Harrogate, and members of the association resident in Ireland may obtain tickets on application to Mr. R. F. J. Henry, F.R.C.S.I., 24, Upper Fitzwilliam Street, Dublin. The luncheon is open to non-members, and lady guests are welcome.

The next monthly clinical meeting for medical practitioners will be given at the Hospital for Epilepsy and Paralysis, Maida Vale, W.9, on Thursday, July 27th, at 3 p.m., when Dr. E. A. Blake Pritchard will demonstrate "Drowsiness and Coma." Tea will be provided, and it will be a convenience if those intending to be present will send a card to the secretary.

The ninth annual meeting of the National Institute for the Deaf was held in Church House, Westminster, on July 6th, with Lord Charnwood in the chair. Addresses were given by the Archbishop of Canterbury, Sir Francis Fremantle, and Admiral Sir Edward Bradford.

The current issue (March-April) of the Epidemiological Report of the Health Section of the Secretariat of the League of Nations is devoted to the geographical distribution of dysentery.

The tenth medical tour of the spas, climatic resorts, and sea-bathing therapeutic centres of Italy, referred to in this column on May 20th (p. 903), will be held from September 14th to 30th. The number of tourists is limited to 150, and the application list will be closed not later than July 31st. Full particulars may be obtained from the Italian State Tourist Department, Waterloo Place, Regent Street, S.W.1.

A medical tour to Bad Nauheim and Bad Wildungen is being arranged for the beginning of August. Several excursions, a drive through the Taunus Mountains, and a trip on the Rhine are included. Medical members of the party are expected to defray their own expenses from England to the German frontier and back; in Germany at the spas they will be guests of the spas. Particulars may be had from Mr. Robert O. Rohme, spa representative to the medical profession, 90, Sheaveshill Avenue, N.W.9. (Telephone: Colindale 8483.)

A paragraph in the *Journal* of January 14th (p. 76), under the heading "A Hospital for Lilliput," described the scale model of a modern hospital which has been constructed for King Edward's Fund. The model was first exhibited in Bond Street, and during the past month at the Ideal Homes Exhibition at Olympia. The committee of the King's Fund is now anxious to bring it to the notice of hospital committees in the provinces, with a view to arranging an extended tour. The committee is prepared to allow liberal terms for it to be shown under proper conditions; transport to and from places of exhibition will be arranged, and costs of insurance, etc., will be borne by the Fund. Communications should be sent to the chairman of the Hospital Model Subcommittee, G.P.O. Box 465A, 10, Old Jewry, E.C.2.

The centenary of the Association of the Practitioners of the Seine, founded by Orfila in 1833, was recently celebrated in presence of the President of the French Republic and the Minister of Public Health. Addresses were delivered by Dr. Pierre Bazy, president of the association, and Professor Rathery, the general secretary.

Dr. L. F. Beccle of Lincoln's Inn was called to the Bar on June 28th.

Dr. John A. Ferrell has been made president, and Dr. Haven Emerson president-elect, of the American Public Health Association.

Dr. Richard Pfeiffer, professor of hygiene at Breslau, and Dr. Alexander Classen, professor of inorganic chemistry at Aachen, have been awarded the Goethe Medal, founded by President Hindenburg.

An outbreak of 365 cases of typhus fever has recently occurred in Chile, affecting almost the whole of the southern part of the country.

In 1932 11,168 cases of small-pox were notified in the United States, as compared with 30,232 in 1931 and 48,907 in 1930.

The following appointments have recently been made in foreign medical faculties: Dr. Kurt Wachholder of Breslau, professor of physiology at Rostock, Dr. Oskar Seifried, professor of pathology at Munich, and Dr. Eduard Pernkopf, professor of anatomy at Vienna.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS

Alopecia Areata

"B. B. L." (Aberdeen), replying to "A. A. H.'s" query (*Journal*, June 24th, p. 1138) asks: Does "all the usual remedies" include pituitary injections? She adds: There is an article by Bengtson in the *Journal of the American Medical Association* (1931, xcvii, 1355), which suggests a new and promising line of treatment, the condition being regarded as a result of pituitary dysfunction.

Phlebitis Migrans

"BIRKENHEAD" would welcome suggestions for radical treatment in the following case: A man, aged **58**; history: enteric fever in **1899**, operation for appendicitis **1916**, phlebitis three weeks later in both thighs—duration two months. Subsequent attacks occurred in the right leg in **1921**, '**24**, '**26**, '**28**. Since **1930** there have been almost continuous attacks in the same leg of about three weeks' duration. Previous treatment included stock and autogenous vaccines, iodides, mercury, citrates, etc. Local treatment has included ichthyol, glycerin, belladonna, and tinct. iodi in various strengths. Surgical measures are contraindicated; no "specific" history; heart, lungs, and urine normal.

Income Tax

Replacement of Books and Use of Car

"T. H." holds a county council appointment as A.M.O., and receives 3½d. per mile for travelling expenses. He inquires as to claims for deduction of the cost of replacing technical books, and such motor expenses as tax, insurance, and depreciation.

*** The emoluments of the employment are assessable under Schedule E, and "T. H." must show that the expenses he seeks to deduct are "wholly exclusively and necessarily" in the carrying out of the duties of his office. The position with regard to the books is that, where the local authority requires the medical officer to maintain a reference library, the cost of keeping it up to date is allowed, but not otherwise, the expense being regarded as incurred not in the carrying out of the duties, but in maintaining personal competence to carry them out. With regard to the car expenses, he can claim only the excess of his "necessary" expenses over the amount of the mileage allowance—for example, if a better or larger car than is necessary is used the claim would have to be restricted accordingly. In effect, any such claim must be tantamount to alleging that the county allowance is inadequate—usually a very difficult matter to establish to other people's satisfaction. The colleague to whom "T. H." refers, who has had deduction for motor expenses, may possibly have done so owing to some misunderstanding on the part of the income tax officials as to whether he receives a mileage allowance.

LETTERS, NOTES, ETC.

Convalescent Serum in Poliomyelitis

At a conference in Linz last autumn, Proefssor Stiefler and others gave an account of the geographical and age distribution and general epidemiology of poliomyelitis.[1] In Upper Austria between **1909** and **1913** 153 attacks occurred with **15** per cent. mortality, while in **1931** 288 were notified with an **8** per cent. mortality. Since approximately **1,000** infections a year occur also in Germany, leaving some **500** invalids, the need for the administration of serum in the earliest stage was strongly urged, though its uselessness after paralysis had occurred was pointed out. In one instance only eleven doses of convalescent serum were asked for by practitioners in a year, though this number represented but a fraction of the attacks. The need for organization of supplies of convalescent serum and of arrangement for emergency distribution by train or aeroplane was emphasized. Supplies of convalescent serum are kept at various centres, and it is available also from certain serum-producing firms. Following convalescent serum the blood of convalescents and finally the blood of relatives is commended. Human convalescent serum and Pettit's antiserum had been used, but the numbers were admittedly too small to justify definite deductions about the efficacy of treatment.

Treatment of Impetigo

Dr. E. M. R. FRAZER (Burton-on-Trent), after referring to recent articles in the *Journal* on this subject, especially on the use of elastoplast, writes: It may not be generally known that a cellulose seccotine (rawlplug durofix) gives very good results, particularly where the lesion is situated on parts constantly subject to movement—that is, the interdigital folds, and corner of the mouth and of the nose. The seccotine is applied direct from the tube, and dries in a few seconds. When dry it is invisible, pliable, and waterproof, even to hot water. A second application may be necessary next day. I do not think that harmful effects may be expected, as amyl acetate, which is used in cosmetic nail polishes, is apparently the base. Healing is rapid, but the crusts should be removed before application.

Injection of Varicose Veins

Dr. H. R. BARRETT (Queensland, Australia), in reply to Dr. George Gillett's inquiry in the *Journal* of April 22nd (p. 729) as to whether any reader had had any experience of extensive clotting after injection of varicose veins, writes: I injected the right saphenous vein just above the knee with quinine and urethane solution in a melancholic patient. Four days later the whole of the saphenous vein from the foot upwards was thrombosed. In addition to that there was considerable oedema of the foot and leg. He was treated with rest and firm bandaging, but the oedema lasted about three months before clearing. A second case which I saw had been injected by a friend of mine. This time the injection was below the knee. The sequel to the injection was very similar to that of the above case.

Medical Golf

Last year a new medical society was started in the Rugeley district, and Mr. Nesfield Cookson presented a cup for competition among the golfing members. The competition took place on July 2nd on the Brocton Hall golf course, when the principal scores were: Dr. Torrance (**89**—**18**), **71**; Dr. C. N. Smith (**86**—**14**), **72**; Dr. Frazer (**88**—**10**), **78**; Dr. Gilchrist (**85**—**7**), **78**.

The Late Dr. R. W. Innes Smith

Professor ARTHUR J. HALL writes: In my obituary notice of the late Dr. Innes Smith, published by you on May 27th, I stated that he presented an "engraving" of Sir Charles Scarburgh to the College of Physicians. I find now that, as a matter of fact, it was a large oil painting, which hangs in a prominent position in the entrance hall of the College to-day.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages **40**, **41**, **42**, **43**, **44**, **45**, **48**, and **49** of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages **46** and **47**.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *32*.

[1] *Wien. klin. Woch.*, May 12th, 1933.

Observations
ON
THE TREATMENT OF RODENT ULCERS
BY

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"Rodent ulcer" is the term we use for basal-celled epithelioma of the appendages of the skin. It is locally malignant, but never, or practically never, spreads to the lymphatic glands while it still remains a basal-celled epithelioma. In its later stages, however, whether it spreads or not, it tends to become a true squamous epithelioma, and though even then it shows little tendency to spread to the lymphatic glands, it does occasionally do so. Its commonest site is on the face, especially the inner canthus, the nose, or the cheek, but it may occur in any part of the body. Usually a single lesion, it is occasionally multiple. I have one patient who has had six separate primary sites in various parts of the body, one of which became epitheliomatous. She has recently developed four more. She has also had a separate squamous epithelioma of the vulva. All these have been treated successfully with radium. I have also had a case of multiple rodent ulcers which were successfully treated with radium, but the patient developed a carcinoma of the oesophagus, a squamous epithelioma which eventually killed him. The life history of a rodent ulcer varies greatly. It will very often heal temporarily, and sometimes remain healed for years with very little evidence that it has been there, but almost always it will eventually spread. It may advance only slowly for years and then go ahead rapidly. In other cases it may grow fairly rapidly from the start. It may or may not ulcerate; when it does, there is often a tendency for it to heal up at times and break down again.

DIAGNOSIS

The typical appearance is a central smooth area, which may be scar or apparently normal tissue, with a raised, characteristic-looking, thickened edge (the "rolled" edge). The central part, instead of being a scar, is very often an ulcer. Occasionally there is merely a soft raised growth, reddish and semi-translucent, and also quite typical in appearance. Either of these varieties may be completely epithelialized over. In another form, which is particularly apt to occur on the temple, there is a serpiginous ulceration with scarring where it has healed. Generally some portion of this shows the typical rolled edge. In certain situations a growth, almost typically a rodent in appearance, is almost always an epithelioma: these are on the ear, especially on the upper part of the pinna, on the upper edge of the tarsal plate of the lower eyelid, and sometimes on the lower edge of the ala nasi. If sections are taken of these, they show squamous epithelioma; as this is of a type which very rarely spreads to the glands, its treatment is similar to, though more drastic than, that of rodent ulcer. It is occasionally, though rarely, difficult to distinguish a very early rodent from a wart, and this is important because the treatment is not quite the same. Warts, however, are usually multiple and only rarely single. If there is any doubt, the growth should be treated as a rodent.

CHOICE OF METHOD

Surgery.—An early rodent can be excised with the cold knife or with cutting diathermy, and very often the result is quite satisfactory, but the proportion of recurrences is large unless the excision goes very wide of the growth. The resulting scar is, of course, not inconsiderable, and, anyhow, the cosmetic result cannot be compared with that following radium treatment. If a rodent is excised and recurs, its subsequent treatment with radium or *x* rays is always more difficult and less certain than is the case when it is treated *ab initio*. Even more so is this true if recurrences have been excised one or more times. Treatment of the scar by radium after an excision will usually prevent recurrence, but one loses the advantage of freedom from scarring that one gets from such radium treatment as is described below. The only advantage that can be urged for surgery is that one can have a microscopical examination of the specimen. At the present day this method of treatment has been superseded. In the early stages a biopsy often means excision of the whole growth, and in a typical case there seems no object in excising a portion, especially as radium treatment is made more difficult thereby. When there is doubt a biopsy may sometimes be advisable, especially if epithelioma is suspected. In advanced cases the position is different. Here an extensive and courageous operation with coagulating and cutting diathermy followed by a plastic repair may be successful.

Caustics.—Carbon dioxide snow has been used, and has occasionally cured a case, but on the whole its use is most unsatisfactory. It is a painful method and produces considerable scarring, while the proportion of failures is far too great to make it permissible to use it. Other caustic methods—except diathermy—have even less to commend them. It may be mentioned that a rodent ulcer has occasionally been stirred up by the use of caustics, especially silver nitrate, and has commenced to grow rapidly from that time. Diathermic coagulation has some of the disadvantages of surgery, but it is a quick method, and may be most valuable in really experienced hands.

X rays.—As I gave up the use of these in favour of the γ rays of radium more than twenty years ago, I have no experience of the use of modern methods in ordinary cases. From the results in late cases that have become epitheliomatous I am inclined to think that better results will almost always be secured with radium.

Radium.—The most important thing about the radium treatment of rodent ulcers is *not to use unfiltered or lightly screened radium radiations.* It is true that the majority heal up, and a proportion—perhaps the majority—remain well, but a large number recur, or sometimes even fail to heal. When they recur after such treatment they are not so easy to heal as new cases, and when they recur after several times being healed by such methods they become very refractory to radiations and require very severe methods. I am afraid that those who employ unfiltered radiations do not follow up their cases properly, as I see a number of such patients who, after several recurrences, come for more efficient treatment. Unfortunately some that I see after years of bad treatment have become epitheliomatous and are sometimes incurable. In early rodents one should get some 99 per cent. of successful results by simple methods, and the other 1 per cent. can often be treated by more severe radium irradiation. The minimum filtration should be 0.3 mm. of platinum, and 0.5 mm. is better even for early cases. For advanced cases 1 mm. or even 2 mm. platinum may need to be used.

RADIUM TREATMENT

Early Cases.—In principle, the method I advocate is: (1) To give a mild erythema dose of filtered radium γ rays to the whole of the affected area. (2) To repeat this dose after six weeks if any naked-eye evidence of growth remains. Occasionally a third curative treatment is

necessary. (3) To give two prophylactic doses at intervals of six weeks and fourteen weeks after the *last* curative dose. The reason for this preventive treatment is that with these mild doses the disease is not completely eradicated when all ocular evidence of it has disappeared. If a big enough dose is given to cure the disease with one treatment the reaction is painful, and unnecessary scarring is produced. The justification is that quite a number of recurrences have occurred in patients who refused to have the full treatment, while recurrence in the other cases has been exceedingly rare.

Technique.—(1) It does not matter whether radium or radon is used, and I believe mesothorium would prove equally effective. (2) Either plaques or tubes may be used. I prefer tubes, as I find they can be better adapted to the various cases. Further, when the area is large a number of tubes side by side form a very flexible plaque. (3) For small lesions I use a tube containing 50 mg. of radium, with a filter of 0.5 mm. of platinum. The tube has an active length of 15 mm. and an active diameter of 4 mm.; it is covered with rubber to cut down secondary radiations from the platinum. If the lesion is oval and not more than 6 mm. across or 12 mm. long, as determined by vision or touch, the tube is placed exactly over it. The dose in a patient of 40 to 50 years of age is sixty-five to seventy minutes. The raised lesions are given a longer time than the flat ones. If the lesion is circular and not more than 7 or 8 mm. in diameter the tube is placed for thirty-five to forty minutes in one direction and for a similar time at right angles to this. It will be noticed that the total dose has to be larger than when one direction only is employed. In older patients the dose is slightly increased, and in younger patients diminished, because the tissues become less and less radiosensitive with age. In lesions of greater size, two or more such tubes are used, or one tube is shifted from one situation to another, great care being taken to keep successive areas parallel and not to overlap. Owing to radiation from one tube playing on the area acted on by the other, and so increasing the dose, each treatment has to be shortened somewhat: fifty-eight to sixty minutes suffices when two tubes are used as above. Smaller quantities of radium may be used, and longer times, but the smaller the quantity of radium the larger the total number of milligram-minutes. Cases on the pinna of the ear which are resistant should be treated by interstitial radium (radium needles) straight away. As regards interstitial irradiation in other situations in early cases, my colleague, Dr. Roxburgh, buries filtered radon seeds under the growth, and is getting good initial results by this method. I have used radon seeds or radium needles buried beneath refractory growths with success. They must be buried sufficiently far out, and must be long enough, to act beyond the obvious edge.

Later Cases.—Included in these we get cases which have been treated by radium or *x* rays inefficiently applied, by surgery, or by caustics; but there are also a number of cases in which the disease has been neglected or disregarded by the patients themselves, and where there is therefore a larger extent of disease. (*a*) *Untreated cases.* To cover the larger area either a battery of radium tubes is used, or one or more tubes are moved from place to place. Plaques may be employed when the surface is flat, but this is rarely necessary. I use on such a case, for instance, eight to thirteen tubes with an active length of 1.5 cm., each containing 5 mg. radium and filtered by 0.5 mm. of platinum. The tubes are placed on strapping touching one another, and one layer of lint is placed between them and the patient's skin. The average dose, using thirteen needles, is two and a half hours. (*b*) *Treated cases.* Here, procedure entirely depends on the nature and severity of the previous treatment. If non-radiation methods have been used, or if radiations have been employed in doses obviously too small, then methods similar to those described above may be used, but only continued if the response to the first dose is good. In cases where much irradiation has been employed, one either uses thicker filtration straight away or treats the case as in (*c*) below. (*c*) *Advanced cases.* In these days we no longer see advanced cases which have not been treated before, but those one saw in the past were very resistant, and drastic measures had to be used from the start. Usually such cases have become transformed into squamous epithelioma. If there are no marked radiation changes, probably the best method of treatment is by radium mass-radiation, using at least 1 gram and a filter of 2 mm. of platinum or its equivalent (for example, 4 mm. of lead). If this is not available, interstitial irradiation by radium needles or radon seeds may be used, but it must be thorough, and the foci must be so arranged that the whole disease receives a full dose. This is no easy matter as a rule, and the situation of the growth may make it impossible. It requires the utmost care, attention, and skill on the part of the surgeon. Slipshod methods are invariably punished by failures. The use of 0.8 mm. to 1 mm. platinum filtration on the needles is an advantage if the milligram-hours are much increased as well. The alternative is an extensive diathermy aiming at a thorough eradication of the disease, whatever the deformity, followed by irradiation of the cavity by radium over a wax plaque, or mass radium radiation if available; it is quite possible that full doses of a combination of radium and high-voltage heavily filtered *x* rays may be more effective than radium alone. The question of subsequent plastic operations is always a difficult one, but if the operation has been sufficiently thorough they may be done. Another alternative which is sometimes effective is to use a smaller quantity of radium over a wax plaque worn for twelve to fifteen hours a day for three, four, or five weeks until a severe reaction is produced. I have healed cases this way which had been submitted to much unfiltered radiation and had had fungating ulcers for years. The combination of this method with high-voltage heavily filtered *x*-ray treatment is sometimes effective. In these later stages, although the case is squamous epithelioma, it is only rarely that the glands become affected; so that no routine treatment of these need be carried out when there is no obvious enlargement of the glands. When present, they must be dealt with according to the indications in each individual case.

After-treatment.—Early cases treated with radium, as described above, need no after-treatment except to avoid getting the treated area exposed to sunshine or ultra-violet rays. On no account should ointments or salves be applied, as they intensify the reaction. Infra-red may also be harmful. In the rare event of a hypersensitive patient, a powder of calamine and bismuth carbonate is usually sufficient. If there is blistering a 5 per cent. anesthone (formerly called anaesthesin) ointment should be used. When severe treatment has been used, causing a severe reaction with blistering or an open sore, a dressing of radiostol one part, with three parts of liquid paraffin, promotes early healing. If there is much pain, anesthone ointment may be used.

Late Reactions.—Occasionally, after severe treatment followed by healing, an ulceration may develop years later. It may be very difficult to distinguish from a recurrence. Anesthone ointment usually heals it in a few weeks.

RESULTS

In the early stages the method of radium treatment advised will cure 99 per cent. of cases. Recurrence is very rare except when the patient has refused to have

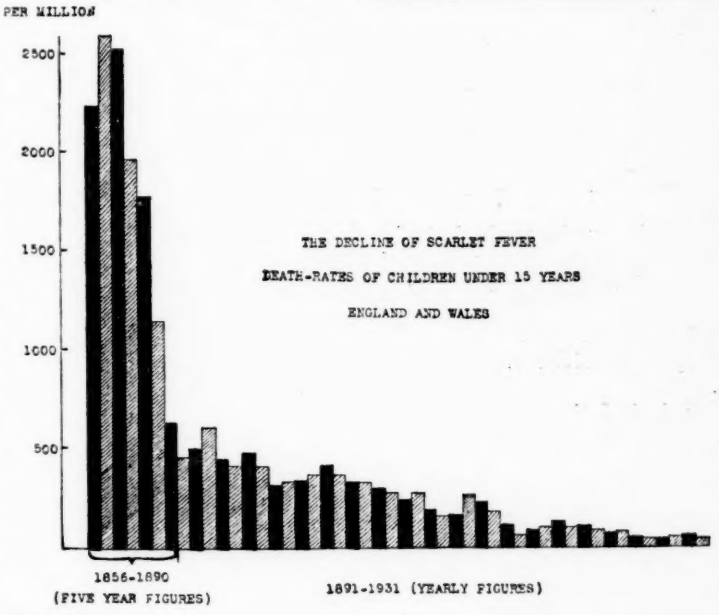
the prophylactic treatment. In later stages there is still a very large proportion of cures in previously untreated cases. It is only when one has to deal with other people's failures that the results are not so good; yet many of these may be healed when treated drastically, and others can be kept in good health for many years. Cosmetically, the results in early cases will astound those who are not accustomed to this method. It is often difficult to discover where the lesion has been unless one knows where to look, and I have had cases where the second prophylactic dose was difficult to apply, owing to the absence of scarring. Careful notes and diagrams must therefore be kept. We obtain ever a larger proportion of early cases as medical practitioners and surgeons get to realize the value of the newer treatment. As the public get to know of it they do not fear to come early, as there is no question of operation. Let us hope that those who use unfiltered radiation will soon discard this in favour of safer methods; our results will then be even better. Anyone whose statistics do not show more than 90 per cent. success in all cases, early and late, and something of the order of 99 per cent. in early cases, would do well to consider carefully what he is doing, and revise his methods.

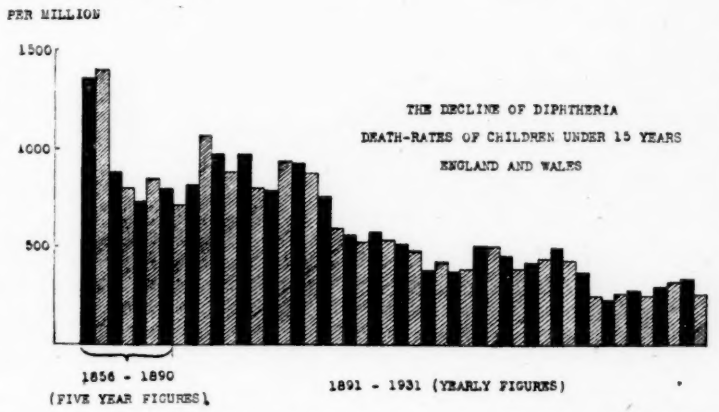
THE DECLINE IN THE DEATH RATE OF DIPHTHERIA COMPARED WITH THAT OF SCARLET FEVER

BY

L. COBBETT, M.D., F.R.C.S.

For scarlet fever there is no specific treatment; for diphtheria we have had antitoxin since 1894; yet the death rate from the former disease has, as everybody knows, diminished almost to extinction, while that of the latter has undergone only a gradual and moderate decline. For the benefit of those who, like myself, do not readily take in the significance of rows of figures until they have been put into graphic form I append two charts compiled from the numbers given by the Registrar-General of the death rates of children under 15 years of age from these diseases during the last seventy-five years.[1]





The chart for diphtheria certainly would not lead a layman to suspect the marvellous potency of antitoxin. Yet any pathologist who, having carefully estimated the minimal fatal dose of a diphtheria toxin for the guinea-pig, proceeds to measure out enough to kill one hundred thousand of these animals and adds to it a single cubic centimetre of a good antitoxin serum, and then finds that he can inject the mixture into one of these animals without any serious consequence, cannot but be disappointed that its universal clinical use has not been followed by more striking results, and wonder whether it is being employed in the best possible way.

As Ehrlich pointed out years ago the secret of its successful use is early administration. Cohn in 1904 published some figures for 1,000 cases treated in the Moabit Hospital in Berlin, classified according to the day of treatment. Of those treated on the first day only 1.3 per cent. died, while of those treated on the fourth day 24.7 per cent. died. The Metropolitan Asylums Board long ago published a similar analysis of over six thousand children treated at the Brook Hospital. The mortality according to the day of treatment was as follows:

Day when antitoxin was given ...	1	2	3	4	5+
Number of cases	250	1,513	1,690	1,338	1,765
Mortality...	0	4.29	11.25	16.89	18.52

These figures ought not to be forgotten. May I be allowed to give an experience of my own which impressed me greatly at the time?

During the little epidemic in Cambridge in 1900–1 there were many cultures of diphtheria bacilli in the laboratory. The disposal of these caused me some anxiety, because a proportion of our staff were quite young boys. One day, missing one of these youthful attendants, I inquired where he was, and was told he had not turned up, and learnt, on further inquiry, that he had complained of his throat being sore on the previous evening. Armed with a syringe and antitoxin, I went at once to his home and found him in bed, quite ill, and very unwilling to be disturbed in any way or to sit up and be examined. On looking at his pharynx I thought I saw a little patch of commencing membrane; and a swab taken at the time yielded, next day, a culture of diphtheria bacilli. I did not, however, wait for the result, but injected antitoxin immediately.

With the intention of giving a prophylactic injection to his little sister I called again in the afternoon, some six or seven hours after my first visit. I then found my patient, who who was so ill in the morning, sitting up, demanding his tea, and banging about with an illustrated newspaper that had been given him to read, but which he had rolled up into a club and with which he was vigorously whacking the bed.

[1] Statistical Review, England and Wales. Tables, Part I, Medical Table 9.

While the outbreak lasted I, acting on behalf of the medical officer of health, visited all the homes where there were children known to have come into contact with notified cases. In this way I saw several incipient cases of diphtheria, and never failed to find that antitoxin cut them short at the start.

Let us look a little closer at the chart of the death rate from diphtheria. There is no decline worth noting in 1894 when Behring's antitoxin was first broadly introduced to the medical world by Roux at Budapest. The reception of antitoxin was very lukewarm in Great Britain, as I showed in an article I contributed to the *Edinburgh Medical Journal* in 1900, though much more striking results had been obtained in Paris and Berlin. From 1894 to 1902 there was no decline in the death rate in England and Wales, but there was then a fall, after which for twenty years the death rate remained about two-thirds of what it had previously been, at first declining slowly until 1910, and then advancing again towards 1920, with a slight rise during the war. In the four years after 1920 it dropped to the lowest point it has ever reached—namely, to 231 per million children under 15 years of age, or 21.5 per cent. of what it was in 1894—after which it has risen a little.

The result of the use of antitoxin during a third of a century or more, though by no means to be despised, cannot, then, be anything but disappointing to those who have realized its amazing efficiency in the laboratory, and raises the question whether still better results might not be obtained if the best possible use were made of it. I cannot help feeling that in many cases it might be given much earlier than it is. The pernicious practice of relying on laboratory diagnosis instead of having the courage of their own opinion, has led practitioners to wait for the result of the examination of a swab, and has prevented the early use of the remedy.

Let the doctor then *never* wait for the swab, but give antitoxin with the least possible delay whenever there is a reasonable suspicion of diphtheria. And when diphtheria is prevalent in his district let him not omit to carry with him a syringe and a bottle of antitoxin, lest he lose the few precious hours during which alone this wonderful remedy is able to save life.

It might perhaps be argued that the success of antitoxin in the treatment of diphtheria has been, to some extent, masked by a transference to that disease of cases that would formerly have been put down to scarlet fever, owing to a change in the criterion of diagnosis.

Now from the time when Bretonneau first distinguished diphtheria from scarlet fever the criterion of diagnosis was the presence or absence of a membrane in the pharynx. But by about the last decade of the nineteenth century the discovery of the diphtheria bacillus, and the increasing degree of certainty with which it might be cultivated from a swab and identified, was gradually leading to the substitution of the presence or absence of the bacillus for the presence or absence of a membrane.

This change undoubtedly led to many cases being diagnosed as diphtheria which would not otherwise have been so classified; but as such cases were non-membranous, they were almost invariably mild ones, and could not have added anything material to the death rate of diphtheria, while they must have greatly tended to reduce the case mortality. For the same reason the transfer of such cases to diphtheria, even if the majority of them would in former years have been classified as scarlet fever, could not have reduced the death rate from that disease. Moreover, the great and dramatic fall in the death rate of scarlet fever had taken place before the new method of diagnosis had come into use.

The fall in the death rate of scarlet fever from one or two thousand per million children under the age of 15 to no more than forty-five in 1931 has not been accompanied by any great change in its prevalence, at least since the beginning of this century, as Miss Hilda M. Woods has recently shown. It is the severity of the disease which has changed.

Diphtheria, on the other hand, has not become milder: an increase in the numbers of cases so diagnosed, owing to the change of method, has no doubt led to a fall in the case mortality of the disease; but the disease, when the old-fashioned signs are well marked, seems to be as deadly as ever, and it is only antitoxin which prevents its mortality being as high as it used to be. A drop in the death rate to an average level of about 25 per cent. of what it was when antitoxin was introduced is something to be thankful for, but still better results seem to be within reach if only the antitoxin could be brought more quickly to the patient.

INTESTINO-VESICAL FISTULA

BY

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(With Special Plate)

The subject of intestino-vesical fistula does not appear to have attracted the attention of surgeons, perhaps because of the rarity of the condition. I have consulted several elderly general practitioners, long-standing in practice and keen observers, and also the honorary physician to a large hospital for incurable diseases, as to the number of cases of this condition that they have come across. None can recall a single case, even as a sequel to carcinoma of the rectum. The information thus gained confirms my conviction of the comparative infrequency of this type of fistula.

The monumental monograph of Harrison Cripps, *The Passage of Air and Faeces from the Urethra*, published as long ago as 1888, is probably still the best work available. This book analyses his collected series of sixty-three cases. He ascribes three causes of the condition: (*a*) trauma, (*b*) cancer, and (*c*) inflammation. He states that the fistulae were much more often due to inflammatory causes than to cancerous growths, and that therefore the prognosis by treatment was good. Two cases of his series were due to trauma, one being a sequel to labour lasting for four days, while in the second case the patient was impaled on a stake, which traversed the bladder and rectum. Cancer only caused the condition in nine instances. Cripps comments on how seldom a case of carcinoma of the rectum terminates in perforation into the bladder. An inflammatory condition was the cause of the perforation in forty-five cases out of sixty-three. His tabulation was:

Abscess	15	
Stricture	8	
Ulcer	4	... 27
Stone		... 2
Exact nature not described		... 16
		45

Cripps describes the situation of the fistulae in the following table:

Rectum	... 25
Colon	... 15
Small intestine	... 12
Colon and small intestine	... 5
Not stated	... 6
	63

In the colon series the opening in eleven cases was the sigmoid flexure, while in four cases the exact site was not mentioned. In twelve cases the communication was with the small intestine alone, while in five instances both the large and small intestines were involved. Communications with the large are therefore about twice as many as with the small intestine.

I am describing six cases which have occurred in private and infirmary practice. One was due to a tuberculous adhesion between the small intestine and the bladder, one to a perforative colon sacculus, two to a malignant growth of the lower end of the pelvic colon, while a further two were due to a urinary calculus ulcerating into the rectum. In a modified search of the surgical literature I have found a record of odd cases only. My surgical registrar, Mr. J. C. Stanger, has also searched through a further portion of the general records of the Royal Victoria Infirmary, Newcastle, and can find only one case in addition to my own. This investigation took a very considerable time, for it was necessary to peruse carefully, not only all "intestinal" cases, but also the records under the heading of "bladder." This search, although limited, is further evidence that the condition is not a common one. Cripps makes no mention of sacculitis as a cause of the fistulae. I suggest that most of the twenty-seven of his cases under the heading of abscess, stricture, and ulcer were probably a sequel to an inflamed colon sacculе. He suggests that "probably the majority of them resulted from inflammation set up by accidental perforation of the bowel by fragments of bone or other foreign bodies." I am in agreement with his comment that it is a rare event for a carcinoma of the rectum to ulcerate into the bladder, causing a fistula.

CASE RECORDS

CASE 1.—TUBERCULOUS SMALL INTESTINE

A young adult female, who had tuberculous enteritis, developed urgent vesical symptoms, which included the passage of air and intestinal contents with her urine. At operation I excised an adherent loop of tuberculous small intestine, and a fistulous communication on the bladder fundus was closed in layers, thus providing a cure. This was a pre-war case, and the record has been lost. I have been unable to trace the case to ascertain the after-history.

CASE 2.—SACCULITIS OF COLON

G. T., aged 56, a moulder, was admitted on January 18th, 1931, under my care, to the Royal Victoria Infirmary, Newcastle, on account of passing "wind in the water." Eight months previously the patient went to his doctor complaining of "backache and swelling of the bowels." He had had no abdominal pain, but was very constipated, and had had to take purgatives regularly; the motions had been normal. One month later he began to have urinary symptoms—a scalding pain on micturition, with frequency every two hours at night. The urinary stream was good. The urine later became chocolate-brown in colour and thick, and had an offensive odour. He was treated for cystitis, and one month later—that is, six months before admission—he began to pass wind with his water, and the urine was brown and frothy. He passed a little bright red blood in the urine on one occasion shortly before admission. He had lost flesh. The family history was unimportant.

Examination.—He was asked to micturate, and it was observed that the flow contained brown faecal material and air with the urine. The abdomen disclosed no abnormality—that is, there was no tender area, no muscle guarding, and no abnormal mass to be palpated. Nothing abnormal could be detected on a rectal examination. A barium enema was attempted, but as it was returned immediately the examination was negative. A cystogram (using 12½ per cent. sodium iodide) was employed, but no abnormality was detected. A diagnosis of colo-vesical fistula from sacculitis was made.

Operation, January 28th, 1931, confirmed the diagnosis. A mid-line suprapubic incision was made. There was a hard nodular mass 1½ in. in length in the middle of the pelvic colon, which was adherent to the bladder on the left side. There was no glandular involvement; the liver and the rest of the abdomen were normal. The adherent colon was separated and resected, an end-to-end anastomosis being performed by direct suture. No further sacculi were seen. The area of the bladder denuded of peritoneum was invaginated by interrupted sutures of catgut. No definite fistula of the bladder was detected. A drain was inserted to the bottom of the pelvis. An india-rubber catheter was used per urethram for ten days, and then removed. On examination of the removed specimen the condition was found to be due to sacculitis. This was also producing stenosis of the bowel.

Progress.—He made an uneventful recovery. On examination on October 6th, 1932, his wound was completely healed. He had gained 1½ st. in weight. He looked the picture of good health, and expressed himself as feeling very well. His urine was clear and free from albumin, while microscopically no pus cells could be found in a high-power field. His bowels were functioning normally. A barium enema disclosed a normal colon, there being no sign of any stenosis, nor were any further sacculi detected. When seen on May 5th, 1933, he was in perfect health; he had gained 2 st. in weight and his urine was normal, chemically and microscopically.

Morbid Anatomy.—The specimen removed at operation (see Special Plate, Fig. 1) shows a portion of the colon laid open longitudinally. The middle part of the specimen shows very marked thickening of its wall, especially of the subperitoneal coat. The mucous membrane appears to be normal, except that it is thrown into numerous transverse folds, caused, no doubt, by the longitudinal contraction of the other layers of the bowel wall. There are one or two shallow pouches in the mucous membrane above and below the contracted area. There are two well-marked diverticula in the wall of the contracted portion of bowel, surrounded by a process of inflammatory fibrosis. A glass rod is shown passing from the lumen of the bowel into another well-marked diverticulum (seen on the peritoneal aspect of the specimen). This was the site of a fistulous communication with the urinary bladder.

CASE 3.—URINARY CALCULUS

On October 25th, 1920, I removed, in a private hospital, the prostate gland of Mr. T. E. T., aged 70, because of retention of urine. The excised gland consisted of enlarged lateral and middle lobes. Each was adenomatous, and scattered throughout were a large number of small prostatic calculi. Almost certainly some of these calculi were "spilt" during the prostatectomy, which was not an easy proceeding owing to considerable fixity. Unfortunately he had a markedly sacculated bladder, and doubtless some of the prostatic calculi gained access to some sacculi. His suprapubic sinus took a considerable time to heal, but it eventually did so. Two years later he had symptoms of a calculus in the prostatic pouch, and this was removed by the operation of suprapubic lithotomy. The wound soon healed up. At the end of a further two years his symptoms of difficulty with micturition returned. He became uraemic. All urine was voided via the anus, none coming per urethram. He died shortly afterwards, on February 7th, 1928, over seven years after the prostatectomy. Without a doubt a calculus (?with a "spilt" prostatic calculus as a nucleus) had ulcerated through into the rectum, providing a natural cure for his retention of urine.

CASE 4.—URINARY CALCULUS

In the early part of 1927 I saw in consultation James H., aged 76. For many years previously he had had symptoms of an enlarged prostate, but he was now suffering from retention of urine with overflow. He was enormously fat, and looked very ill. His bladder was distended to the level of the umbilicus, while a rectal examination indicated an adenomatous prostate gland. Owing to the distended bladder the size of the gland could not be gauged. I advised him to have his bladder drained, but he refused, and left hospital for home. Shortly afterwards the local practitioner was called in to see him, as the patient was said to be suffering from "severe diarrhoea." Examination showed that the hypogastric tumour had vanished, and he was intermittently voiding collections of urine from his bowel. No urine came per urethram. A calculus was never recognized in his motions,

but it is most probable that Nature had provided a cure for a vesical stone, which had ulcerated through the bladder base into the rectum. He lived for some weeks following the onset of the "diarrhoea," and died on May 22nd, 1927.

CASE 5.—CARCINOMA OF PELVIC COLON

On November 17th, 1920, Mr. A. T., aged 53, a commercial traveller, came to consult me on the recommendation of his doctor. For five years he had had symptoms of severe cystitis, and recently a bacteriologist had reported that he had found "tubercle bacilli" in the urine. Seven weeks prior to my seeing him the patient had noticed brown flakes in the urine, which had a marked faecal odour. Nothing abnormal could be found on an abdominal examination—that is, there was no area of tenderness, no muscular rigidity, and no abnormal mass to be felt. There was no enlargement of the liver. Nothing abnormal was found on a rectal examination. Cystoscopy disclosed a chronic oedematous ulcer on the bladder fundus, which suggested to me a fistulous communication with the bowel. A good deal of faecal matter was washed out of the bladder during the cystoscopy. In view of the bacteriological report a diagnosis of tuberculous fistula between the intestine and bladder was made, and operation was recommended as the only prospect of giving relief.

Operation, November 27th, 1920.—The abdomen was opened through a median suprapubic incision. A large mass was found in the lower part of the pelvic colon, lying almost transversely across the pelvis, and firmly adherent to the posterior aspect of the fundus of the bladder. On separating the adhesions a fistula was demonstrated between the colon and the bladder. A portion of the colon containing the mass and the fistula was resected, and an end-to-end anastomosis performed by direct suture. A piece of omentum was brought through the gap in the mesentery, and sutured partially around the line of the anastomosis to support it. The fistulous opening in the bladder was closed by infolding separately the muscular and peritoneal coats, using interrupted catgut sutures. A drain was employed, the wound was "bipped," and closed in layers above the site of exit of the drainage tube. There was no other abnormality noted—that is, there were no enlarged abdominal glands, and the liver was normal. An indwelling catheter was tied in per urethram, and left in for ten days. After the operation there was a considerable oozing of blood from the depths of the wound, but one injection of normal horse serum was effective. The patient made a good recovery.

Morbid Anatomy.—The specimen removed at operation (see Special Plate, Fig. 2) consists of a portion of colon divided longitudinally. There is a large ulcerated area, with an irregular base and thickened everted edges, occupying the middle part of the bowel. The lumen of the bowel is almost completely blocked at the upper end of this ulcerated area. The muscle layer of the bowel wall has disappeared opposite the central part of the ulcer, being replaced by new growth. Around this portion of the bowel there is a considerable increase of the subperitoneal fat. A pin demonstrates the site of the fistulous communication with the urinary bladder. Professor Stuart MacDonald, on December 3rd, 1920, reported: "This is a typical columnar-cell cancer."

After-history.—The patient is now alive and well, over twelve years after the operation. Ever since the operation he has continued to carry on his full work as a commercial traveller. I am informed that he is in perfect health, and that he has no abnormal symptoms. His bowels are regular, there is no abnormality with micturition, and his urine is quite clear. The case is of considerable interest bacteriologically, for there can be little doubt that the patient did *not* have urinary tuberculosis, nor had he ever had it. It demonstrates well the fallacy of relying upon the microscopical diagnosis of urinary tuberculosis. Had a guinea-pig inoculation test been done the error of the microscopical diagnosis would have been established.

CASE 6.—CARCINOMA OF RECTUM

In August, 1921, Mr. J. C., aged 65, came to consult me, complaining of passing blood and slime in his motions. On a rectal examination a malignant ulcer was found on the anterior wall of the rectum in the region of the bladder base. It proved impossible to ascertain definitely whether the growth was fixed or not. In November, 1921, Professor Rutherford Morison opened his abdomen, and found a fixed inoperable growth of the upper part of the rectum. The abdomen was closed, nothing being done. The course of the malignant disease progressed slowly, and the patient was comparatively comfortable until October, 1922, when he suddenly began to pass flatus and faeces per urethram. His plight became a terrible one, for when every few minutes he tried to micturate, columns of soft faecal matter were voided per urethram. A colostomy was done, which gave some degree of relief, but death did not take place until three months later.

SUMMARY

Intestino-vesical fistula is uncommon.

A chronic inflammatory source is probably the commonest cause.

Cases due to colon sacculitis and colon cancer—both successfully operated upon—are described in detail.

Rectal cancer rarely ulcerates into the bladder; one such case is referred to.

In two cases a vesical calculus probably ulcerated through into the rectum.

In the remaining case a tuberculous loop of small intestine was the cause.

X-RAY TREATMENT OF MALIGNANT DISEASE OF THE LUNG

BY

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(With Special Plate)

Within recent years pulmonary tumours have received considerable attention, owing mainly to the increase in their occurrence. There now exists a profuse literature on the subject, but one preponderatingly concerned with diagnosis. On the treatment of the condition very little has been written.

In order to assess the value of a particular form of treatment in a relatively rare condition two methods are open. These may be called the statistical and the personal. In the statistical method an analysis of cases is made from the records of patients, many, if not most, of whom were never seen in their lifetime by the compilers. The one advantage of this method is that only in this way can the results in a large number of cases be seen at a glance, since it falls to the lot of a very few observers to see in their own practice a sufficient number of cases from which to make reliable statistical deductions. This method has, on the other hand, several serious limitations. First, however accurately the records may have been kept, the compilers must lose much from having had no personal contact with the patients themselves. In particular the compilers tend to concentrate upon a comparison of the survival period in the treated and untreated cases. They lose sight of the effect of the treatment upon the patients during their survival, an aspect of the problem which, from a humanitarian point of view, is just as important as the possible prolongation of life. Secondly, if, as usually happens, the compilers are unfamiliar with the technique of the treatment, they are not in a position to assess the relative value of different modifications of technique or to distinguish between adequate and inadequate treatment. Thirdly, there is in this method nothing to prevent the same cases from being analysed over and over again by different compilers. This is an inevitable result of what may be called third-party investigation. It is quite clear that no advance can be made by the repeated publication of the same cases.

EXPERIENCE OF OTHER WORKERS

On the subject of *x*-ray therapy in intrathoracic tumours there have recently appeared two papers of this kind which well illustrate the points I have made above. The first of these is by Chandler and Potter,[1] who have collected 120 cases from the records of St. Bartholomew's, Charing Cross, and other London hospitals, and from their own private patients. Of these, fifty-nine had received *x*-ray treatment, while sixty-one were untreated. The writers find the average duration of life to be six months for the untreated and eleven months for the treated. They then go on to say that these figures are probably fallacious, since among the untreated there were several rapid cases, and among the treated several of a chronic type. In thus explaining away the marked difference between the treated and the untreated they seem to me not only to be reluctant to give due credit to the treatment, but also to fail to acknowledge the true significance of their statistics. Let us suppose, for the sake of argument, that the cases numbered sixty treated and sixty untreated. If thirty of those untreated had an average survival of eight and a half months (the mean between six and eleven), the remaining thirty would need to have an average survival of only three and a half months in order to lower the survival of the whole to six months. Similarly, if, of the sixty treated cases, thirty had an average survival of eight and a half months, the remaining thirty (the chronic type) would need to have an average survival of thirteen and a half months in order to raise the survival of the sixty treated to eleven months. It is, however, unimaginable that the proportion of acute cases among the untreated and of chronic cases among the treated could have been as high as one-half. It was almost certainly much smaller. Let us suppose that forty-five in the one class were strictly comparable with forty-five in the other, leaving fifteen to pull down the average survival in the untreated, and fifteen to pull it up in the treated. Simple calculation shows that these fifteen of the treated would require to have an average survival of eighteen months, while the fifteen of the untreated would require to have an average survival of *minus six weeks*. Such is the logical outcome of the contention advanced by Chandler and Potter. The other paper, which is written on the same lines, is by Maxwell and Nicholson.[2] A similarly adverse view of the effect of *x*-ray therapy is reached, despite the fact that out of one hundred "selected" cases the average duration of life was fourteen months in the treated and 10.9 months in the untreated. "Our results," they write, "are not encouraging." In four, life may have been prolonged; in three there was rapid dissemination. To my mind the results arrived at by Maxwell and Nicholson must be largely discounted, partly because some of the cases were evidently identical with those of Chandler and Potter, and partly because some of the cases occurred as long ago as 1912, when *x*-ray therapy was in its infancy. Maxwell and Nicholson further state that "*x*-ray treatment may also be of use in differentiating certain kinds of growth. Failure to react to heavy doses of *x* rays by shrinking in size is strong evidence that the growth is a carcinoma." The cases which I shall describe completely refute this statement.

The adverse views quoted above are not shared by those who have confined their observations to their own cases. Herzberg[3] states that *x*-ray therapy causes a temporary diminution in the size of the tumour and its metastases, and affords relief to the stenosis and dyspnoea. Paterson,[4] analysing nineteen cases, asserts that the treatment results in marked immediate palliation, easing of pain and of coughing, slower accumulation of fluid, and general clinical improvement. Although the average survival is practically the same in the treated and untreated (about three and a half months), in the former death occurs more rapidly. He concludes that the relief of pain and the more merciful type of death justifies the treatment, even if life is not prolonged. Davidson[5] has no doubt that *x*-ray therapy "does possess a very definite value in treatment, although it must be made perfectly clear that the benefit is only temporary and that *x* rays must be classed among palliative remedies." He quotes the case of a boy in whom "the relief of dyspnoea, which was extremely distressing both to the patient and to outsiders, was little short of dramatic." The tumour diminished in size, but the boy subsequently developed a very grave anaemia, which seems to have been the immediate cause of death, as the urgent pressure symptoms did not recur. Holfelder,[6] writing of bronchial carcinoma, states that while the marked tendency to form metastatic deposits hinders complete cure, intensive *x*-radiation at least improves the condition temporarily, the results being visible radiologically as a diminution in the size of the tumour and the expansion of collapsed parts of the lung. It is the only method by which the severe pain and coughing can be relieved and life prolonged. The longest survival in his experience is three years.

TECHNIQUE

The following nine cases have come under my care in the last five years. For Cases 1 to 6 the plant used was a double coil, giving a potential of 180 kV: filter, 0.5 mm. Cu + 1 mm. Al; focus skin distance, 23 cm.; applicator circular—diameter, 8 cm. Cases 7 to 9 were treated with a condenser plant giving a constant potential of 200 kV: filter 1 mm. Cu + 1 mm. Al; focus skin distance, 30 cm.; applicator rectangular—8 × 10 cm. These conditions gave at 10 cm. depth of water about 30 per cent. of the skin dose. Treatment was given weekly or bi-weekly, one, two, or sometimes three fields at each sitting, the dose to each field being 75–80 per cent. of the erythema dose. The fields were selected according to the position and extent of the tumour as revealed by *x*-ray examination, and were varied so as to produce so far as possible an even irradiation over the whole of the skin field. Such intensive treatment produced, in due course, a deep and fairly uniform bronzing of the skin. The amount of irradiation was in fact only limited by the tolerance of the skin, for since these are not cases which can be cured the danger of late after-effects to the skin does not arise. With the exception of the ninth, whose condition was already very advanced, none of my patients have suffered any ill effects from treatment. I am convinced that cases such as these cannot be treated on a preconceived idea of a "carcinoma dose." Irradiation must be carried out up to saturation point. Every month, or in some cases twice a month, films were taken under standard conditions and the tumour measured.

CASE 1

May 3rd, 1932.—J. G., aged 16, gipsy fair boy, caught cold, had an irritating cough, but continued to work.

May 23rd.—Dyspnoea. Could not sleep. Had to sit up in bed with his head thrown back.

May 26th.—Had to struggle to get his breath. Admitted to Addenbrooke's Hospital under Dr. Gaskell. There was a well-marked swelling of the upper part of the right chest, most prominent just lateral to the manubrium. Not tender. Trachea displaced to the left. *X*-ray examination showed a large shadow of uniform density with a rounded lower border occupying almost the whole of the right lung field. *X*-ray treatment was given immediately on admission. The next day the patient was very dyspnoeic. Had a restless night. Continuous oxygen given by catheter. *X*-ray treatment as above. The day after there was copious secretion from mouth. Restless at night. On May 29th there was surprising improvement of dyspnoea. Looked much better. Very much better the following day. Treatment continued approximately every third day until June 28th.

July 2nd.—Discharged, perfectly fit. Continued treatment as an out-patient until July 27th. Remained in excellent health. *X*-ray examination showed some diminution in size

of tumour. The boy disappeared, together with the gipsy band to which he belonged. Since then nothing has been heard of him.

This case illustrates the dramatic effect of treatment upon a large tumour, which had reduced the patient to the point of death.

CASE 2

February 23rd, 1928.—R. M., postman, aged 23, was admitted under Dr. Haynes. Had been in low health for three months. Cough for two weeks. On the previous day had had a pain in the left side followed by spitting of blood. Coughed blood again three days later.

March 22nd.—*X*-ray examination showed a carcinoma of left lung, with some collapse of upper lobe. Tuberculosis right apex.

March 26th and 27th.—*X*-ray treatment was given. He was discharged from hospital on April 2nd in good health.

April 6th and 12th.—*X*-ray treatment continued. *X*-ray examination showed considerable recession of the tumour and re-expansion of the lung. The patient then went away for three months' holiday, which he thoroughly enjoyed.

July 7th.—*X*-ray examination indicated a slight recurrence. General health good. *X*-ray treatment. At this stage the patient was persuaded by a friend that he had been wrongly diagnosed and should seek another opinion outside Cambridge, with the result that his trouble was declared to be tuberculosis. This was partly correct, in that he undoubtedly had some small foci at the right apex. He was sent away for open-air treatment.

November 24th.—Readmitted to Addenbrooke's Hospital. *X*-ray examination demonstrated a dense shadow occupying the whole of the left lung field. The patient died on December 9th, twelve months after onset of symptoms.

Necropsy

Post-mortem examination by Dr. Gaskell revealed a dense white growth extending outwards in all directions from the main left bronchus, reaching the bifurcation of the trachea and spreading into the uppermost part of the right bronchus. Left bronchus very constricted but not occluded. Practically the whole of the left upper lobe and also the upper part of the left lower lobe were involved. Microscopical examination of tumour: a small round-celled variety of primary carcinoma. There was extensive tuberculosis, both old and recent, at the right apex.

This, then, was a case of carcinoma in which *x*-ray treatment, although administered only for a short period, produced striking recession of the growth and complete restoration to health for several months. It may reasonably be presumed that the patient would have lived longer had he not fallen a victim to faulty diagnosis.

CASE 3

May 21st, 1930.—R. T., a publican, aged 55. *X*-ray examination showed a carcinoma of right upper lobe.

June 9th.—Admitted under Dr. Gaskell with a history of a lump in right side of neck, and progressive weakness for two months. Lost 1½ stone. No dyspnoea, cough, or palpitation. On examination dilated vessels were seen over chest, and a hard craggy mass on right side of neck. Laryngoscopic examination (Mr. Walford) revealed a right abductor paralysis.

June 13th.—*X*-ray treatment begun. He was discharged eleven days later, continuing treatment as an out-patient.

August 7th.—Mass in neck no longer palpable. Feels better. Appetite good. No pain.

September 23rd.—Readmitted on account of increased weakness. *X*-ray examination showed slight increase in size of tumour. Treatment continued. A fortnight later the tumour was smaller, and a month later he weighed 11 st. 7 lb. Discharged. Treatment continued.

November 2nd.—Tumour only very slightly larger than on first admission.

November 11th.—Increased opacity of right upper lobe. He weighs 12 st. 5 lb. Has coughed blood.

December 4th.—Feels very much better. Good appetite. Very little cough.

February 14th, 1931.—Readmitted, having developed a severe headache.

March 23rd.—Great enlargement of mediastinal shadow.

April 11th.—Condition fair to moderate until the last two to three days, when he had an attack of intense cyanosis and dyspnoea, and died.

Necropsy

Post-mortem examination by Dr. Whittle showed a large tumour surrounding root of right main bronchus. Upper and middle lobes infiltrated and riddled with small nodules of growth. Right pleura contains a large amount of blood-stained fluid. In the left lung there were three secondary nodules under the pleura. The pericardium was completely adherent. The liver was very extensively studded with umbilicated secondary growths. The right suprarenal consists of a mass of secondary growths completely replacing gland. Dura mater: a large spherical tumour, two inches in diameter, projecting into left occipital lobe. Microscopical examination: carcinoma.

This was a patient with carcinoma, surviving twelve months after the first symptoms and ten months after the initiation of *x*-ray treatment, which caused complete disappearance of the glands in the neck, and also effectively checked the primary growth for a period of five and a half months. He remained free from pain and comparatively free from discomfort until two months before his death, when the secondary in the brain began to cause symptoms.

CASE 4

February 2nd, 1931.—H. S., a caretaker, aged 45, was admitted under Dr. Haynes with a ten weeks' history of cough, shortness of breath, and loss of weight. Had coughed a streak of blood on two occasions. Hard masses on right side of neck.

February 4th.—*X*-ray examination showed an advanced tumour of right lung with partial collapse. Right diaphragm almost immobile. The following day *x*-ray treatment was begun. Condition steadily improved, and glands in neck diminished and eventually disappeared. He was discharged after seventeen days to continue treatment as an out-patient.

March 10th.—Readmitted on account of fainting attack. *X*-ray examination a fortnight later showed great dilatation of the pericardium and a left pleural effusion. Tumour greatly diminished, and right lung only slightly collapsed. Treatment continued.

June 16th.—Tumour considerably diminished and lung re-expanded. Pericardial enlargement subsided, but left pleural effusion slightly increased. Sixteen days later: "Feeling fine" except for slight "wheeziness."

August 10th.—Readmitted owing to increasing dyspnoea. No glands palpable in neck. Three days later he had a sudden attack of dyspnoea and died. Survival after first symptoms, nine months; after initiation of *x*-ray treatment, six and a half months.

Necropsy

Post-mortem examination by Dr. Whittle revealed a mass of growth in the anterior mediastinum, invading the sternum and extending into the posterior mediastinum and involving the roots of the lungs—the right more than the left—and the pericardium. Left lung collapsed. Right pleural cavity completely obliterated by adhesions, and base of right lung firmly adherent to diaphragm and liver. Growth in chest, which is firm and white, extends upwards about one inch above the clavicles. Left bronchus invaded and partly obliterated. Nodules of growth in both peripheral pleurae, but bulk of lung substance not involved. Left suprarenal contains two secondaries, one large enough to involve most of cortex. Microscopical examination: typical oat-shaped cell tumour with much fibrosis.

In this case irradiation caused complete disappearance of the secondary glands in the neck, recession of the primary tumour for a long period, and expansion of the collapsed lung. The effect upon the patient was remarkable. Except for the short period when the pericardium was affected he suffered very little discomfort, and remained buoyant and optimistic until shortly before death.

CASE 5

March 28th, 1931.—E. S., a laboratory assistant, aged 52, was examined by Dr. Haynes. He gave a short history

of swelling of the left side of the neck with pain and shortness of breath. There was a big rocky mass on the left side of the neck. *X*-ray examination revealed a large tumour of the left lung, and displacement of the trachea to the right.

April 10th.—Tumour increased in size and left upper lobe collapsed (see Special Plate). *X*-ray treatment was begun on April 13th and continued for two months. His general health improved markedly and the mass in the neck completely disappeared.

June 3rd.—A very striking diminution in the size of the tumour; expansion of the left upper lobe (see Special Plate). He died about three weeks later. No post-mortem. Survival from onset of symptoms, three months.

This was a rapidly growing tumour. The suppression of the cervical mass not only gave considerable relief but had a special psychological value in this case since the patient had an extensive knowledge of pathology. More important, however, is the fact that the patient was able to follow his occupation, travelling to and fro by motor cycle until within two weeks of death.

CASE 6

September 9th, 1930.—T. H., a carman, aged 56, was admitted under Dr. Haynes. Two months' history of cough, getting steadily worse. Occasional traces of blood in sputum. Five weeks previously had a fit—shouting and unconscious—followed by severe pain beneath right nipple, shortness of breath, and palpitation. Lost 1 st. in weight. On examination he was found to have signs of consolidation of the right upper lobe. *X*-ray examination showed a large tumour of the right lung and collapse of the upper lobe.

October 7th.—Discharged from hospital. *X*-ray treatment given weekly in the out-patient department for a month. The patient then developed a right-sided hemiplegia and signs of secondary growth in the left buttock, and it was considered inadvisable to move him from his home. He survived, however, until the end of March, 1931—that is, eight months after the onset of symptoms.

Owing to the early appearance of blood-borne metastases affecting the brain and left leg, only a limited amount of irradiation could be given. It is therefore impossible to assess the effect of treatment, but the fact that the patient, with so large a tumour, survived five and a half months after irradiation is not without significance.

CASE 7

December 5th, 1932.—A. L., a tobacconist, aged 52, complained of having had a husky voice for the last six months. Was getting easily tired, short of breath, but was still at work. Mr. Walford found complete paralysis of the left recurrent laryngeal. *X*-ray examination showed a dense shadow to the left of the aorta, the extent of which was masked by collapse of the left upper lobe. Trachea deflected to left. Left diaphragm immobile. Injection of lipiodol by Mr. Walford, the patient lying on his left side, revealed dilatation of the left main bronchus and obstruction of its upper branch.

January 30th, 1933.—*X*-ray treatment begun. He improved steadily. Was less easily tired and less short of breath. Condition of larynx unchanged. Two months later, "feeling well."

April 10th.—Slight extension of tumour. Six days later he developed pneumonia while at home and died in two days. Survival from onset of symptoms, ten months.

Apart from a short stay in hospital for investigation the patient was not laid up until two days before death. He was comparatively free from discomfort throughout his illness.

CASE 8

January 18th, 1933.—H. T., a carter, aged 57, was seen by Dr. Cole. Complained of pain in the left side of the chest for two weeks, and hoarseness for three weeks. Enlarged glands in left supraclavicular triangle and left axilla. Left vocal cord paralysed. *X*-ray examination revealed a tumour of left lung and collapse of upper lobe.

February 23rd.—*X*-ray treatment begun. Steadily improved in health; felt stronger and was able to garden.

March 13th.—Tumour greatly diminished. Left upper lobe re-expanded. Cervical glands considerably diminished. (Still under treatment.)

CASE 9

April 1st, 1933.—G. D., a roadman, aged 46, was admitted under Dr. Whittle. Influenza eight weeks before, followed by shortness of breath and weakness; two weeks' swelling of neck, three weeks' hoarseness. Hard glands in right side of neck and right axilla. Purulent expectoration, pyrexia. *X*-ray examination showed a dense shadow occupying the lower and inner part of the right lung field.

April 12th.—*X*-ray treatment begun. The patient made no response, and tolerated treatment very badly. He was very ill, developed oedema of the right arm, and signs of compression of the right cervical sympathetic. He died about five weeks later, after suffering prolonged agony.

Necropsy

Post-mortem examination by Dr. Gaskell revealed a soft growth of the trachea just above the bronchi. Right bronchus was heavily involved, left bronchus free. Right lung was heavily impregnated with a white, caseous-looking growth, which extended throughout its substance along the paths of the bronchi. It was much shrunken, and a section showed a septic bronchopneumonia with greenish muco-pus. Right pleura contained a large quantity of blood-stained fluid. Left lung was completely free from growth. Secondary glands filled anterior mediastinum and extended up into right side of neck. Heart muscle was flabby and soft, and studded with some secondary deposit from the growth in the lung. Liver was greatly enlarged, and studded throughout with whitish secondary deposits. Secondary deposits also in abdominal glands.

Microscopical Report.—Primary carcinoma of lung, oat-cell type, characteristically spreading along the bronchi and undergoing extensive necrosis with very great distortion and alteration of individual cells.

The advanced state of dissemination, particularly in the liver, and the septic condition of the lung, adequately explained the failure to respond to treatment. The disease must have been widely disseminated before treatment was begun.

DISCUSSION

Case 9 is clearly in a class apart from the others, and to all intents may be considered as untreated. The slow decline of this patient in great pain may be taken as the typical end of such cases. In the others irradiation produced certain very definite effects. The enlargement of the cervical glands disappeared permanently. This alone was no mean gain, since the patients naturally believed that the cervical swelling was the cause of their trouble, and rejoiced at its disappearance. In five of the cases the primary tumour underwent striking recession, and the collapsed part of the lung re-expanded. In two cases irradiation, though it did not diminish the tumour, at least appeared to have inhibited its growth for a time. The survival periods in those that have died were twelve, twelve, eight and a half, three, eight, and ten months from the onset of symptoms, giving an average of nine months, or ten months if we exclude the one rapid case. The average survival after the initiation of treatment was six months. That life was prolonged cannot be proved, but it may reasonably be inferred from the improvement in the physical condition. The mere prolongation of life, however, is a small point. What matters is the condition of the patient during survival. If irradiation only prolonged the agony for a few months its application would not be justified. But the effect in all the cases which have been fully treated has been quite otherwise. The symptoms directly due to the primary tumour and its cervical extension have in a great measure disappeared, and the patients have been restored to a high degree of health and comfort which has lasted until shortly before death. The end has usually been due to embolic dissemination, to which this type of tumour is, from its position, peculiarly liable, and which irradiation has at present no power to prevent.

CONCLUSIONS

In malignant disease of the lung, *x*-ray treatment, if carried out intensively, causes temporary recession of the primary tumour, re-expansion of collapsed lung, and disappearance of enlarged cervical glands. Whether it prolongs life or not, it certainly provides a survival period of a comparatively high degree of comfort and happiness, the inevitable end being rapid instead of a prolonged agony.

[Space does not permit reproduction of radiograms of the other cases referred to in this article.]

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FRACTURES OF BOTH BONES OF THE LEG

BY

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(With Special Plate)

On account of increasing numbers of road and industrial accidents it has become more necessary than ever, both to the individual and to the community, that fractures should receive immediate and correct treatment ; this applies, in particular, to fractures of the lower extremity, because of the important part the limb plays in weight-bearing and locomotion.

I think it will be agreed, at the outset, that the aim of treatment should be the restoration of complete function to the injured limb. One school of thought, however, lays down the axiom that a complete restoration of function is not possible without an anatomical reposition of the injured bone or bones, and urges that this should be obtained irrespective of how drastic the necessary procedure may be. I have doubted the truth of this view for some time, mainly on the grounds that anatomical reduction is of little value without union, and that union is progressively prejudiced as the method of reduction involves more interference. The Liverpool school has always taught that the essential factors in treatment are a restoration of normal alignment to the long axes of the bone fragments, as correct function depends on this, and of full length of the limb. End-to-end apposition, while an admirable ideal in itself, is of secondary consideration compared with alignment, if restoration of function is uppermost in the surgeon's mind ; in many cases it ensues automatically upon reduction, particularly if the case is dealt with early, but those methods designed exclusively to produce it often inflict further, and in my opinion unnecessary, trauma on the limb.

It was with the object of proving my contentions on this subject that forty-eight cases of fracture of both bones of the leg have been collected and reviewed. Only those dealt with personally from start to finish have been chosen, and the aim of treatment has been as outlined above.

ROUTINE METHOD OF REDUCTION

While the reduction of each fracture must be considered as a separate problem, the broad principles can be laid down in a fairly standardized form. I do not presume to make any claim for originality, and there must be many variations quite as good as the method to be described.

(*a*) *Simple Fractures.*—*X* rays in two planes should be carefully studied, and a plan of reduction worked out beforehand. The patient is then anaesthetized and placed on a table, with his knees flexed over the end and legs hanging down. The surgeon sits on a low stool, on a level with the patient's foot, and, gripping the malleoli firmly with both hands, first of all applies steady and increasing traction to the leg. This is continued until the length of the injured limb coincides with that of the normal limb, on measurement from the adductor tubercle to the internal malleolus. Shortening, in the early stages, is due to muscle spasm, and this is entirely abolished by anaesthesia and traction, so that there is no fear of shortening recurring when traction is relinquished. This leaves the surgeon's hands free for the next step, which consists in manipulating the fragments according to the plan previously worked out. The patient's forefoot is then placed on the surgeon's knee, keeping the ankle at right angles, and a plaster is applied, over wool, as far as the knee. When this has set, the limb is slowly extended at the knee, and the plaster continued to the groin. Muscle spasm gradually merges into actual shortening, which is more difficult to overcome. Herein lies a strong indication for the early reduction of these fractures.

(*b*) *Compound Fractures.*—Anti-tetanic and anti-gas-gangrene serums should be administered as routine in road accidents. After a complete toilet of the limb has been carried out, preferably in the operating theatre, the wound is carefully excised under full aseptic precautions. If the case is seen within twelve hours of the accident primary suture is often successful. Later than this the wound is left as a crater, after excision, and covered with sterile vaseline gauze over which plaster can be applied. Reduction is then carried out on the lines already described. By splitting the plaster longitudinally while damp provision is made for the easy inspection of the wound, should this become necessary. Additional *x* rays are taken to check the reduction. Further manipulation is undertaken if the long axes of the fragments are not parallel, but if this condition is fulfilled strenuous efforts to obtain complete apposition are unnecessary and harmful. Sufficient apposition is usually obtained, and I have the impression, although without sufficient data to prove it at present, that fractures with some degree of lateral displacement unite more quickly and firmly than those in which there is an anatomical reduction of the parts. A more closely fitting plaster, over stockinette, is applied at approximately the end of the first ten days. The limb shrinks, and, unless the replastering is carefully carried out at this time, *x* rays show that the fragments may drop out of line. At the end of about three weeks the majority of patients walk comfortably in this plaster if a pad of rubber is incorporated in the heel. In the case of oblique fractures ambulatory treatment is not started until the end of about six weeks. At some time after eight weeks I have found it safe to apply a short plaster, from the knee, and active exercises for this joint are instituted, but this must be decided upon *x*-ray evidence of union as seen in the series of films taken at fortnightly intervals. As will be noticed from my results a majority of my cases have shown firm union at the end of three months. When this has been obtained the plaster is discarded, and active exercises are continued until the muscles of the limb have regained their normal size and tone ; at the same time, the patient is re-educated with regard to walking. Allowing for the two or three weeks "convalescent treatment," which is usually obtained nowadays, I think that most men should be ready for their normal work six months after the accident.

OTHER METHODS

To turn now to a consideration of other methods which have been advocated for reduction of these fractures.

Open Reduction.—In some cases it may be found that satisfactory reduction is impossible by closed methods, owing to the complete separation of a large fragment, or the entanglement of the bone ends in other structures of the limb, or a coincident nerve or vascular lesion which may demand immediate exploration ; but such cases are of infrequent occurrence.

When open reduction is performed, whatever method of bone fixation is employed—plating, pegging, or wiring—a relatively large segment of the shaft must be exposed, and the stripping up of periosteum and soft tissues damages the blood supply to the bone and thus delays union. The *x* rays of Case 1 (Fig. 3 on plate) are an excellent illustration of this.

I believe that deliberate open reduction of these fractures should be reserved for those very rare cases in which good weight-bearing line cannot be obtained by manipulation. It is not worth while to run the risk of delaying union unless there is definite evidence to show that the functional result of manipulative reduction is likely to be poor ; and I would suggest that lack of apposition should not be included in this evidence.

Reduction by Skeletal Traction.—So much has been written on his subject in recent years that it is difficult to sort out and appraise the advantages which are claimed for the method by those who practise it. They seem to be as follows :

1. That traction is rendered easier.
2. That anatomical restoration of the parts can be assured.
3. That when reduction has been obtained, if plaster fixation is being employed, this can be carried out without assistance, and there is no chance of losing the position obtained.

To deal with these seriatim :

1. Traction is rendered so easy that an enormous amount of damage can be done to soft parts in a short space of time. Manual traction is likely to be just sufficient for reduction and no more.

2. As already stated, I consider this to be of secondary consideration to alignment, and I have advanced my reasons for saying so. The craving for anatomical reduction seems to me to be founded upon an undue consideration of *x*-ray results, without any observations on function being made. Anatomical reduction is easily nullified by lack of union or a stiff joint above or below the site of fracture.

3. In these fractures all shortening, apart from actual loss of bone, is due to muscle spasm, and when this has been abolished by anaesthesia and carefully applied traction no recurrence of the deformity is possible. The argument upon which this " advantage " is based is physiologically unsound.

There are certain disadvantages of the method which are set out below. It would seem that they are effective whether the skeletal traction is continued for the whole period of fixation or whether it is applied just until the fixative agent is in position, but more so in the former instance. The stiff knee, following skeletal traction from the condyles of the femur, has been noted repeatedly. The stiff ankle, following skeletal traction from the os calcis, has also to be accounted for.

1. Sepsis.—This can only be eliminated by using an aseptic technique as rigid as that which is employed when exposing a bone—which is only possible in an operating theatre—and it is clearly wrong to say that the procedure is safe in any surroundings. Whatever precautions are taken it cannot be denied that a wire or a pin, which has passed through the skin, is inserted into cancellous bone, and it is noteworthy that the usual procedure, when exposing a bone, is to discard the skin knife before entering the deeper tissues. Infection of the os calcis is not a matter to be risked lightly.

2. Pressure sores.—If plaster is applied with the limb under traction an elastic recoil will take effect immediately the traction is released. The malleoli and dorsum of the foot must be pressure points. It is well known that if a window is cut out of plaster over a pressure area the circumscribed skin bulges through and necrosis still occurs around the edges.

3. Stiff ankle.—When skeletal traction from the os calcis is used, all the force applied to the tibia and fibula must pass through the lateral ligaments and capsule of the ankle and subastragaloid joints. What amounts to a " strained ankle " is inflicted on a limb which has already suffered the trauma of a fracture.

RESULTS

In reviewing the present cases the standard of a good functional result was defined thus: firm union, full length to clinical measurement, no pain on walking, and a full range of active movement at the knee and ankle. Cases in which any one of these criteria was not satisfied were classified as fair results only. The patients' ages varied from 2 to 60 years. A detailed analysis of the cases is presented in tabular form, but from the point of view of functional results they can be classified thus: good functional results, thirty-five ; fair functional results, seven (two of these had flexion only to the right angle at the knee as the sole remaining disability, another had half an inch of shortening due to actual loss of bone, and another is the case shown in Fig. 1) ; patients not yet out of three-month period, six.

		No. of Cases
Type of fracture : Simple	73	48
Compound	15	
With no disturbance of line, etc.	12	48
With angulation or displacement only	16	
With angulation, displacement, and shortening	20*	
Union : In three months	25	48
In four months	9	
In six months or over	8†	
Not yet out of three-month period	6	

* Full length was obtained in 15 (75 per cent.). Shortening of 1/4 in. or over remained in 5 (25 per cent.). Of the latter five cases, one had actual loss of 1/2 in. bone substance, and another was the case whose *x* rays are shown in Fig. 1. The other three had shortening up to 1/4 in. They all fulfilled the other criteria.

† Four of these were compound.

X rays of three cases before and after reduction will be found on the Special Plate. A brief note on each one is given below.

Case 1.—G. Q., aged 60 years. The worst radiological result of the whole series. This patient was classed as a fair functional result because he had half an inch of shortening. It is extremely interesting to note that he united in three months, the same time as that taken by the best radiological result (see Case 2), and that he went back to work as a train driver in seven months. He had a severe head injury at the time of the accident, and it was impossible to do more than immobilize his leg in correct alignment.

Case 2.—N. C., aged 17 years. The best radiological result. Anatomical reduction by manual traction and plaster. Union occurred in three months.

Case 3.—T. O., aged 17 years. This fracture was first of all reduced in the manner described, and the result is shown. The patient was then placed under the care of another surgeon. He returned to me four months later with the fracture still ununited. From his own description it seemed that he had had further manipulation by skeletal traction, and finally an open reduction. The subsequent *x*-rays shows the position, and the fact that union was only just commencing at five months.

CONCLUSIONS

1. That consistently good results can be obtained from fractures of both bones of the leg by ordinary methods of manipulation and plaster application.

2. That it is not a sound argument to contend that anatomical reduction is the best means of assuring a good result. Alignment, not apposition, is the factor which counts most in producing good function. The damage produced in obtaining anatomical reduction should always be taken into account.

3. That skeletal traction is unnecessary for the reduction of fractures of both bones of the leg. It is harmful, in that it adds further insult to an already traumatized limb.

TREATMENT OF CYSTIC HYGROMA OF THE NECK BY SODIUM MORRHUATE

BY

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(With Special Plate)

Cystic hygroma is a condition which occurs not infrequently in Singapore. It is usually present at birth or occurs sufficiently soon after birth to indicate that the condition is probably a developmental error. So far no specific cause has been found for the condition, which is a lymphangiectasis. Sometimes the tumour increases in size with alarming rapidity. It has been suggested that the condition might be due to a blockage of the lymphatics of filarial origin, transmitted through the mother's blood, but I have never found any evidence which could substantiate this suggestion in the slightest.

In the earlier stages the tumour is represented by a small semi-solid nodule, which consists of a mass of irregularly arranged tortuous lymphatic vessels. Obstruction occurs in some of the vessels, possibly on account of their tortuosity, the vessels rapidly dilate, and the mass becomes definitely cystic.

In the present case the child, 1 month old, of healthy Chinese Hokien parents, was referred to me by Professor English on March 3rd, 1933. The baby was born on January 29th without instrumental intervention. At birth there was a swelling on the left side of the neck, just below the auricle, and occupying the mandibulomastoid and submandibular interval. The tumour was about the size of a small orange, and from the time of birth until it was referred to me the swelling had increased to nearly twice its size.

On examination the tumour was definitely cystic, and below the body of the mandible were three nodular hard masses, each about the size of a marble and apparently associated with the larger cystic swelling. The whole mass was movable and the skin was not attached. The infant was kept under observation for three days, and the swelling was visibly increasing day by day. Fig. 1 (on Plate) is a photograph of the child, taken on March 6th, which shows the size of the swelling and the upward and outward displacement of the auricle.

Owing to the age of the patient and the nature of the tumour the treatment of these cases is somewhat difficult. The growth is liable to periodic inflammatory attacks which may result in fibrosis and a cure. If the condition is stationary it is better left alone as spontaneous cure may occur; hence the condition is rarely seen in adolescence. If, however, the swelling is progressing rapidly, as in the present case, some form of treatment is required. The mortality from open operation is very high, as the child is restless and it is difficult to keep the operation area free from infection. The growth is never circumscribed, and one cannot avoid cutting through dilated vessels. This leads to oozing from the wound, offering an excellent medium for the growth of organisms and a ready ingress to the deep tissues of the neck. It is also difficult to avoid the facial nerve in open operation. Electrolysis has been tried with success, but according to Rowlands and Turner injections such as iodine have been unsuccessful.

It occurred to me that one of the more modern sclerosing fluids might be effective. I chose sodium morrhuate as being least destructive to the subcutaneous tissues in the event of leakage. I argued that if this solution could destroy the endothelium of the walls of the veins it ought to have a similar effect on the lining of the lymphatics, and I hoped that some of it might be absorbed into the communicating tortuous vessels and perform a similar function on them, thereby producing a cure.

On March 6th the swelling was aspirated and four and a half ounces of brownish fluid withdrawn; 2 c.cm. of 5 per cent. sodium morrhuate solution were injected into the cyst. The next day it was seen that the cyst was filling again, and the swelling had increased to more than half the size it was before aspiration. On the following day there was no further increase, and on the third day following injection of the sclerosing fluid the swelling was definitely smaller. The aspirated fluid was examined and gave the following analysis:

1. Methaemoglobin +.

2. Cells: (*a*) no endothelial cells; (*b*) lymphocytes, small 96 per cent., large 3 per cent., polymorphs 1 per cent.; (*c*) erythrocytes ++.

3. Albumin +++. Massive coagulation on heating. The proportion of erythrocytes to leucocytes was 100 to 15.

By March 12th the swelling was considerably reduced, and on the following day the cyst was again aspirated. Two ounces of fluid of similar appearance but somewhat thicker in consistence were withdrawn and 5 c.cm. of 5 per cent. sodium morrhuate solution injected. Next day the swelling had increased slightly, apparently due, as on the first occasion, to the irritation of the sclerosing medium. Thereafter the growth gradually subsided. On March 21st the skin round the site of injection, for an area of about one and a half inches in diameter, became red and inflamed. For a day or two this area of skin became thinner and more attenuated, and I feared it might burst and infection occur. The skin was treated periodically with methylated spirit and talcum powder, and it slowly recovered its vitality. By the end of the month the tumour had disappeared, including the nodules in the submandibular region, and only a small area of inflamed skin remained. Fig. 2 is a photograph of the child taken on April 19th. It will be seen that the neck appears quite normal, except for the small area of inflamed skin, which is gradually clearing up.

Throughout the entire treatment the child showed no systemic inflammatory reaction, and its health was in no way affected. The pulse and temperature remained normal, except for a couple of days, when it developed an enteritis, with green diarrhoea, which was quite unconnected with the injection treatment. In my opinion sodium morrhuate offers an easy and safe method of treating cystic hygroma, although several cases would have to be treated before a definite conclusion could be formed.

Memoranda
MEDICAL, SURGICAL, OBSTETRICAL

A CASE OF EPHELIS AB IGNE
(With Special Plate)

The following case is of interest for two reasons: (1) the unusual distribution of the eruption, and (2) the marked pigmentation.

The patient, a feeble-minded girl, aged 18 years, has for the last five years suffered from chronic pigmentation of her legs and thighs (see Fig. on Special Plate). The eruption is of a chocolate colour, consisting of a macular mottling covering the anterior, internal, and external surfaces of both legs, including the left knee, and extending to the top of the inner aspect of both thighs. There is also a slight macular mottling of both hands and wrists. Her mother has been in a mental hospital for the last five years, and her father has been recently admitted to the same institution. School records show that whilst at school the patient was physically delicate and mentally retarded. At 8 years of age she had a severe attack of chorea, which was followed by paresis of the right side of her face. She has always been very self-willed, and her parents appeared to have exercised little or no control over her actions. Contrary to the wishes of her father, she has for the last five years persistently sat on a low stool with her skirts drawn up toasting her legs in front of the fire. On admission to hospital she was found to be anaemic, of rather sallow complexion, with light brown hair and grey eyes. There was no general bronzing of the skin. She had slight paralysis of the right side of her face, causing her to speak with difficulty She was slow in all her actions, and slow to comprehend or respond to any question. Her pulse at the wrist was very feeble and easily compressible; the blood pressure was 100 mm. Hg. She felt cold to the touch, even on hot days. The temperature was 96.4°. There was no cyanosis of the extremities. The urine was free from sugar or albumin. She was incontinent of both faeces and urine at night. On first examination her asthenic condition, hypothermia, and low blood pressure were suggestive of Addison's disease, but the absence of any exaggeration of natural pigmentation, or of pigmentation of the mouth, or of gastric symptoms coupled with the marked improvement in her general condition after a week's treatment and discipline in hospital, led to the conclusion that the deep pigmentation was not due to suprarenal inadequacy, but was the direct result of constant exposure to heat rays from the fire.

COMMENT

Everyone is familiar with the hazel-coloured, retiform eruption on the shins of stokers, cooks, and others who constantly expose their legs to the fire, but in the above case not only is the eruption much more extensive, but the pigmentation is darker and especially on the inner aspect of the thighs assumes a particularly striking net-like pattern.

Erythema followed by pigmentation results from undue exposure of the skin to all forms of radiant energy, the type of pigmentation being largely determined by the penetrating power of the rays. It is now well established that the ultra-violet rays are mainly absorbed by the horny layer of the epidermis. The visible rays are to a large extent diffusely reflected at the surface of the skin, but some of the red-yellow rays, together with the dark heat rays, penetrate the skin, are absorbed in the blood and deeper tissues, and excite vaso-dilatation and sweating. Thus the penetrating power begins at the ultra-violet end of the spectrum, where the penetrating power is very small, and rises to a maximum at the infra-red. Finsen's classical experiment of exposing his arm for one hour to the arc light, with various protective screens, proved that the actinic rays excite an erythema, followed by pigmentation, which protects the blood from excessive action of light. In this case, as in ordinary sunburn, there is a general but superficial pigmentation of the part exposed, and the site of the pigment is the rete mucosum. Most red-haired people, and others with a delicate skin, fail to pigment in the ordinary way, the pigment gathering together in small spots or freckles. On the other hand, the heat rays penetrate more deeply, and if there is constant exposure, lead to a chronic dilatation of the vessels in the true skin. In this case I suggest that the pigment is in the pigment " carrier cells " grouped round the vessels, and it is these cells, coupled with the dilated vessels, which give rise to the characteristic net-like appearance. Since a thin layer of melanin protects the moist hand from burning with a sun-glass, it is probable that the pigmentation round the vessels affords some protection from the harmful effects of the heat rays. In this respect it is unlike the pigmentation produced by the more penetrating x rays, and γ rays of radium, which does not afford any protection to their lethal action, and consequently allows severe exposure to these rays to result in telangiectasis and necrosis.

I conclude that in the above case the pattern formed by the pigment and its chronicity are mainly determined by the histological site of the pigment.

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HERPES ZOSTER BRACHIALIS WITH CONCURRENT VARICELLIFORM ERUPTION
(With Special Plate)

A relation between herpes zoster and varicella was first suggested by J. von Bokay of Budapest in 1892, and again in 1910 (*Arch. f. Med.*, 1892, i, 159, and *XVI Internat. Cong. de Méd.*, 1910, x, 480), and has since been mentioned by others, while some observers think that herpes zoster is simply an atypical manifestation of chicken-pox virus. As the subject has recently come up again in the medical journals I think it worth recording a case which I saw recently at the request of Dr. R. Ballard of Market Harborough, Leicestershire. The patient, a very healthy man, aged 74 years, who had no previous history of, or contact with, varicella or herpes zoster, although at the time there was a small epidemic of chicken-pox in his town, developed a typical zosteriform rash on his right arm and axillary region. This followed prodromal neuralgic pain over this area of four days' duration. A day later he came out with a discrete centripetal vesicular rash on his trunk, both arms, face, neck, and a few vesicles as low as the left knee, which were varicelliform in type.

The herpes zoster brachialis affected mainly the areas of skin supplied from the posterior root ganglia of the seventh and eighth cervical and second dorsal segments (Head's areas).

I might add that there was no history of ingestion of arsenic or any drugs, etc., that might cause a rash; also that it is very rare to observe chicken-pox in a man 74 years old.

Alterthum found twenty-three cases of associated varicella and herpes zoster (*Monats. f. Kinderbl.*, 1928, xl, 330). Apparently recovery from varicella does not confer immunity to herpes zoster, or vice versa.

Two photographs of the case are reproduced on the plate. Owing to not being able to get panchromatic plates at the time, these were taken on ordinary plates, otherwise the rashes would show up even better.

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INFLAMED MECKEL'S DIVERTICULUM WITH PERFORATED ULCER OF ILEUM

Besides the question of diagnosis, two interesting points arise in connexion with this case: (1) Was the perforation "peptic"? (2) Was the diverticulitis secondary to the ulcer, or vice versa?

Leslie B., aged 19, had a sudden attack of pain in the lower half of the abdomen in the early morning of February 7th, 1933. He vomited once. When I saw him at 10 a.m. he looked ill; the temperature was 100.4° F., the pulse 75. There was acute tenderness and muscular rigidity in the right iliac region. There was no history of any previous illness. The patient was sent to hospital with a provisional diagnosis of appendicitis, and was operated upon the same day. The resident surgical officer, Mr. I. R. Duthie, kindly sent me the following report: "It was thought, on physical examination, that this boy was suffering from acute pelvic appendicitis. On exploring his abdomen, however, the appendix was found in a retrocaecal position, high up in the hypochondrium, with its tip adherent to the liver. The caecum was of the infantile type, and had not descended. Further exploration revealed a large collection of sero-purulent fluid in the pelvis, and an inflamed, partly gangrenous Meckel's diverticulum. This latter was completely surrounded by coils of small bowel, with their mesenteric attachments. There was a small perforation of the ileum on its anti-mesenteric border, about one inch from the base of the diverticulum. The perforation looked like the common acute perforation of a gastric or duodenal ulcer, showing marked fibrous induration, and suggesting that the ulcer was an old one. There were no tuberculous mesenteric glands. The diverticulum was removed and the ulcer invaginated. The latter, however, led to excessive diminution of the lumen of the small gut, so a lateral anastomosis was done, short-circuiting the affected coil of bowel." The patient was discharged from hospital on February 24th, and has made an excellent recovery.

Stockport. F. M. FELLOWS, M.B., F.R.C.S.Ed.

SEQUEL TO A SUN BATH

The following case may prove of interest in pointing to the value of temperance in a fashionable habit, which, when properly used, cannot fail to be of benefit to all—namely, sun bathing.

On Whit Monday I was called in to see a man aged 21—a very fine specimen of humanity. He had spent all Whit Sunday on the Welsh coast, alternately bathing and sun bathing. No bathing costume had been used. He had a dark skin, and was normally a good pigmenter, but his employment had been indoors, and previous to Whitsuntide pressure of work had prevented him from getting the benefit of any sunshine there was. The day—locally, at any rate—must have been hot, as I have since ascertained that the temperature in the direct rays of the sun was over 105° F., but olive oil had been used freely both before and after the sunbath.

When I first saw him on the Monday he had two huge blisters, one on his back, extending from the angles of his scapula down to his buttocks, and the other in the front of his chest from the level of his nipples to a point midway between the umbilicus and the symphysis pubis. The rest of the skin of the body was acutely erythematous, with tiny blisters here and there. The area of skin actually blistered must have approximated to one-third of the total skin surface. His general condition was good, the temperature being only 98.8 and pulse 82. On the following day he was much worse, developing a swinging temperature, and becoming incoherent and restless. On the sixth day of the illness he had a profuse haematemesis, and was obviously septicaemic. On the tenth day he developed an abscess in his right buttock, the pus from which yielded a culture of mixed staphylococci. After this his condition slowly but surely improved, and the local lesions showed some sign of healing, though even after the lapse of a month there was much to be desired in this respect. The treatment adopted locally was the tannic acid spray, and the general treatment that for a case of septicaemia.

Two points of interest in the case appear to me to be: (*a*) The absence of any signs or symptoms of the classical picture of "sunstroke." (*b*) The presence of haematemesis, such as is sometimes seen in the case of an extensive burn or scald, due no doubt to the absorption of the toxic products of extensive tissue destruction.

With regard to the prophylaxis of such a condition, the education of the public in the matter of gradually increasing exposures is of paramount importance.

The application of olive oil proves in many cases a broken reed. It tends to delay the erythema, and to render any resultant desquamation less conspicuous, but in the actual prevention of burns involving the true skin it is of little use.

If there exist in this generation of hurry people who really *must* "tan" in one day, the application of a mahogany-tinted lanoline, together with the administration of two grains of quinine bihydrochloride thrice daily for two or three days, will endow them with a skin which may be used—or, indeed, abused—with a care-free impunity.

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Reports of Societies

ALCOHOLISM IN MEDIAEVAL ENGLAND

At a meeting of the Society for the Study of Inebriety on July 11th Dr. J. D. ROLLESTON stated that the chief sources of information concerning the prevalence of alcoholism in the Middle Ages were lay writers—especially poets—historians, and ecclesiastics, whereas little was to be gleaned from contemporary medical writers. In the Middle Ages distilled liquors were unknown as a convivial beverage and alcoholism was due mainly to indulgence in ale and to a less extent in wine. Inebriety was widely spread in all classes of society, but predominated among the clergy (in spite of the protests of leading ecclesiastics such as Anselm, Bede, Boniface, and Wyclif) and university students. The mediaeval publican had a remarkably bad reputation for fraud and dishonesty, while the tavern was usually regarded as a place of ill repute. Dr. Rolleston remarked that, though poetry was often associated in the popular mind with praise of strong drink, the three great English poets of the Middle Ages—Chaucer, Langland, and Gower—were keenly alive to the evils connected therewith, as was illustrated by several passages in their works. The speaker said that alcoholism during the Middle Ages in England, as elsewhere, resembled the alcoholism of classical antiquity, which he had discussed in a previous paper (*British Medical Journal*, 1926, ii, 702), in the following respects. In the first place the chief information on the subject was derived not from medical but from lay writers. Secondly, in both periods distilled liquors were unknown. Thirdly, the absence of syphilis in both ages was another important resemblance in view of the fact that alcohol is such a frequent incentive to exposure to infection and is apt to aggravate the disease when once it is acquired. On the other hand, alcoholism in the Middle Ages differed from that in ancient Greece and Rome in two respects. In the first place it was more widely spread through all classes of society, though it was most conspicuous among the clergy and students. In the second place legislation dealing with drunkenness or control of the liquor trade was unknown in the ancient world, whereas in the Middle Ages taxation of alcoholic drink, reduction in the number of hours of sale, and diminution in the number of taverns were introduced.

Reviews

STUDIES IN MENTAL DEFICIENCY

Professor R. J. A. BERRY has added another to the many services he has rendered to the understanding of mental deficiency by collecting a number of "monographs on mental deficiency and other problems of the human brain and mind" and publishing them under the general title of *Mental Deficiency: Stoke Park Studies.*[1] The book is sent out as "No. I, The Burden Memorial Volume," and is dedicated to the memory of the late Rev. H. N. Burden, whose munificence and practical devotion to the cause of understanding and caring for mentally defective persons is abundantly worthy of such commemoration. His portrait forms an appropriate frontispiece, and a brief biographical note is appended. The implication is that this volume is intended to be followed by others of a similar character, and it may be said at once that such sequels will be looked forward to with much interest.

The scientific and clinical studies bound up in the present volume are seventeen in number. Of these, seven are by Professor Berry himself, four by Professor Berry in collaboration with one or other of his colleagues, four by other members of the medical staff at Stoke Park—Drs. R. G. Gordon, R. M. Bates, and R. M. Norman—to which are added an article by Dr. McCoull on miners' nystagmus, and notes on the case of Charles William Ross, the Kenya murderer, by Dr. H. L. Gordon. The book is illustrated by a large number of graphs and photographs, and it has a good bibliography and index. The reader must recognize and accept that the social and humanitarian approach to feeble-mindedness is not represented in this volume; but each of these studies is, in its degree, a real contribution to the general subject. Some of them are in every respect new, and the others are revised and rearranged versions of articles which have in one form or another been published before. The revision has enhanced their present-day value, and each contains a significant investigation, exposition, or comment on matters of great clinical, pathological, or biological importance. In their present collective form it is probably true that they may be considered as the co-operative work of the whole of the staff of the Stoke Park Colony, guided by their Director of Medical Services. As such, they provide an excellent example of what team-work, suitably directed, may accomplish.

The impression left by a perusal of the whole volume is that we are advancing definitely and by clear steps towards a truer and more practically useful understanding of the nature of mental deficiency, towards the earlier and more certain detection of high-grade mental deficiency and potential social deficiency, towards a more detailed and correct appreciation of the relation of mental disease and defect to brain structure, and towards a more intelligent investigation of the relation of neurological abnormalities to mental impotence or failure. Professor Berry, as editor, very wisely makes no attempt to summarize any general conclusions. Each monograph has its own weight and emphasizes its own points. For those whose main interest, however, is in indications for actual social guidance, two almost incidental remarks may be noted. One is on the subject of sterilization, which otherwise is not dealt with in the volume at all:

> "Advocates of sterilization may possibly realize from these facts, always provided extended and independent research multiplies them, that it is the non-certified parents, rather than their segregated and defective offspring, whose sexual instincts require some form of public control."

Another is with regard to the relation of mental instability to defect of intelligence. In many cases

> "it is important to recognize that it is the instability that is inherent and not the educational backwardness with which it is so often associated. . . . Social capacities are in the main dependent on the ability to control impulsive action. . . . The ability to adjust one's self successfully to new situations is very largely dependent on the capacities of foresight, prudence, and the ability to profit by experience. It is as a test for these characteristics, or their lack, that the Porteus maze tests have proved their utility as a complement to the Binet tests."

The importance of much of this book will, of course, be recognized by the specialist and the expert psychologist, but it should prove of at least equal value to the general practitioner and the trained social worker, who have now become cognizant of the great place which its problems occupy in their fields of practice, but who have not always been accurately instructed or wisely guided in these matters. In the presence of a considerable amount of knowledge, and of a great deal of which we are still ignorant, it is much more imperative to apply what we know than to indulge in schemes for speculative action based upon suppositions with regard to what is as yet unknown.

[1] *Mental Deficiency: Stoke Park Studies.* First series. Edited by R. J. A. Berry, M.D., F.R.C.S., F.R.S.E. London: Macmillan and Co., Ltd. 1933. (Pp. xix + 249; 89 figures. 10s. 6d. net.)

PRACTICAL SURGERY

The second volume of *A Short Practice of Surgery,*[2] by HAMILTON BAILEY and R. J. MCNEILL LOVE, completes this general surgical textbook. As in the first volume, all conditions are described clinically, with adequate summaries of anatomical and pathological detail, and a considerable amount of space is devoted to operative procedures. Half of this volume is occupied by affections of the abdomen, a hundred pages to the head, spine, and nervous system, and the remaining hundred to the thorax, tumours, the skin, specific infectious diseases, and infections of the hand. The excellence of the illustrations, both photographs and coloured and line drawings, is notable, and, as the authors remark, they permit of economy in the text, as they certainly lighten the reading.

The book is one for the house-surgeon and others who are learning surgical craft, and is of special practical use in the way in which alternative methods of treatment in the more difficult problems are contrasted and selected. It is not usual to speak of the positive radiological finding in gastric ulcer as a "filling defect" (p. 544). Under the heading of acholuric jaundice the characteristic urinary findings are not mentioned. In describing the clinical features of acute cholecystitis it is stated without any qualification that there is no jaundice. This statement is probably too absolute, though it may be almost true. There is no mention of suppurative pancreatitis with abscess, which is a definite type of the disease. Among many evidences of the inclusion of modern work we note that duodenal diverticula may be the source of an acute focal infection simulating infection of the gall-bladder or appendix. In the final chapter, on hand infections, a description of web infection and its differentiation from tendon sheath infection is of sufficient importance to merit inclusion.

It has already been mentioned that operative treatment is adequately described, but treatment in general, including after-treatment, is a feature of the book. The authors have condensed their presentation of surgical practice with commendable skill. The book is clearly based upon a wide personal experience and upon acquaintance with the experience of progressive surgery elsewhere; it is sound in matter and readable and attractive in form, and popularity may be confidently prophesied for it. An index to both volumes is appended.

[2] *A Short Practice of Surgery.* Vol. ii. By Hamilton Bailey, F.R.C.S., and R. J. McNeill Love, F.R.C.S. London: H. K. Lewis and Co., Ltd. 1932. (Pp. viii + 475; 349 figures. 20s. net.)

EXPLORATION OF THE UPPER DIGESTIVE TRACT

Dr. DIMITRESCO-POPOVICI's book on methods of investigating the functions of the stomach and duodenum[3] is one which could have been written only by someone with strong French leanings. The French tradition in medicine has always been to approach matters from the clinical side ; and since Claude Bernard's time physiology, perhaps more than any other branch of the medical sciences, has derived profit from being pursued by a worker who has had a sound clinical education. In the present volume the author has applied this principle to the subject of gastric physiology. Combining clinical work on digestive diseases with research on the physiology of digestion, in Bucarest and Paris, he has produced a book which brings up to date the essential facts of our knowledge of the upper digestive tract. Since the first part of the duodenum presents essentially the same problems as those occurring in the stomach, he discusses in detail the anatomy and histology of these organs, passing then to their functions—secretory, motor, absorptive, and excretory. Two-thirds of the book is thus occupied before the author turns to the means of investigating these functions. The chemical methods are given in some detail for examination of stomach contents obtained after excitation of secretion by test meals, or parenteral injection of histamine or acetylcholine. Gastroscopy is described, but the conclusion is reached that it cannot and ought not to be expected to displace other methods. Direct observation may disclose an unsuspected peptic ulcer, but a proportion of ulcers demonstrated by other means cannot be brought into view. Probably its greatest advantage is in following the healing of an ulcer—showing the persistence of a lesion or the state of the healed cicatrix. Gastrophotography also is discussed ; it has elucidated many of the pathological problems of gastritis, but cannot replace radiography and chemical tests. Gastric radiography has reached a degree of precision which makes an examination of the stomach and duodenum incomplete without it, while examination of the gastric chemistry is invaluable as a guide to treatment and for the differentiation of ulcer and neoplasm. Having said so much, the author refers the reader to other books on radiology—which is dismissed in a bare two pages! In discussing lactic acid in the gastric contents he says merely that it is often associated with diminished secretion and the achylia of gastric neoplasm. The book is thus disappointing. It cannot appeal much to English readers. Its method of approach to the subject is alien—the general is stated, the particular eludes us. We have been brought up on Beaumont, with his individual and detailed experiments and inductive methods, and on Pavlov, with his scientific and clearly devised researches.

CARE OF MOTHER AND CHILD

In *Lectures on Midwifery and Infant Care*[4] Dr. T. F. CORKILL has provided a manual on the management of pregnancy and labour which follows closely the syllabus laid down by the Nurses and Midwives Registration Board of New Zealand ; in a foreword Mr. M. H. Watt, Director-General of Health and Chairman of the Board, recommends it as a standard textbook for all training schools, which is a high tribute to its value. The volume is based on lectures to midwives, post-graduate nurses, and students at the Alexandra Hospital, Wellington, and is written in the form of classified notes, numbered wherever possible, and set out under clear headings. For those who learn easily from this type of summary the book should be invaluable, while others, who find their memory more effectively stimulated by a consecutive narrative, will think this a helpful volume when they come to revise their knowledge. To teachers of midwifery it offers a series of outlines from which more discursive lectures can be filled in.

The scope of the volume is indicated by its title. Dr. Corkill has discussed in detail the management of a normal case with the aseptic technique in labour and the puerperium which has been standardized throughout the New Zealand hospitals ; he states, in his preface, that the adoption of this standard is producing practical results, in that puerperal sepsis (excluding abortion sepsis) is no longer the chief cause of maternal mortality in New Zealand. This finding suggests that we might do well to follow the lead of the Dominion in this country.

The clear printing and intelligent arrangement of the text deserve a special word of praise. Dr. Corkill has been at pains to preserve essentials and to prune away unnecessary verbosity ; he has perhaps given a fuller account of the subject than the midwife will need in practice, but has been careful to delimit her responsibilities.

HEALTH FOR ALL

Popular medical journalism has, we are informed, come to stay. Already it shows signs of monopolizing the bookshelves of England's homes and the conversation of its railway carriages. The Press lords say the public wants it ; Press lords are always right, and the public always gets what it wants.

In *Healthy Living*[5] Dr. T. F. Fox has scored a journalistic success in an extremely difficult branch of public instruction—namely, the provision, through the medium of the newspaper (in this case the *News Chronicle*), of a series of "health hints." The matutinal ebullitions of "Family Doctor," "Welfare Worker," "Old-fashioned Nurse," and sometimes of "Medical Correspondent," have often caused sensitive readers to recoil in horror from their particular daily paper. Not only does Dr. Fox fail to produce such a reaction ; he even makes us feel that popuar medical journalism is a Good Thing, and that there ought to be more of it. He brings touches of humour and originality to a subject which, in English newspapers at any rate, has been worn very bare. He maintains throughout a clear and simple style and a standard of advice which is both sound and readable. There is no "sob-brother" treatment of the family at the seaside—overeating itself, getting bather's cramp, subungual sand, and heatstroke, and being stung by jellyfish. There is no sentimental rubbish about child welfare—about "rompers," "baby's diet," and "burgeoning womanhood." Nor, we are glad to note, are catarrhal diseases described as "passing like a wave through offices and homes." Dr. Fox knows how to write, and what to write about.

The book covers the usual range of subjects—colds, corns, halitosis, diet, varicose veins, fainting, fits, insomnia, caries, sea-sickness, chilblains, convalescence, hiccups, and sprained ankle, etc. There are excellent warnings under the headings of "Appendicitis" and "Tuberculosis," and of the more thoughtful essays those on "The uses of pain," "Drugs and medicine" and "The virtues of milk" are to be recommended. "Drink more water," another hardy annual, is also well done. If any criticism can be levelled against this book it must be in respect of the arrangement of the subject-matter—

[3] *Les Fonctions Gastro-Duodénales.* Par J. Dimitresco-Popovici. Moyens d'Exploration. Préface du Félix Ramond. Paris: Masson et Cie. 1932. (Pp. 250 ; 28 fr.)

[4] *Lectures on Midwifery and Infant Care.* By T. F. Corkill, M.C., M.D., M.R.C.P. Auckland, New Zealand: Coulls Somerville Wilkie Ltd. 1932. (Pp. 417. 12s. 6d. net.)

[5] *Healthy Living, or Good Advice for Your Friends.* By T. F. Fox, M.A., B.Chir., M.R.C.S. With a foreword by Lord Dawson of Penn. London: Martin Hopkinson, Ltd. 1933. (Pp. 125. 1s. 6d. net.)

admittedly a small point. The seeker after knowledge is led abruptly from exercise to Xmas feeding, from fasting to headache, from grit in the eye to bank holidays, from asthma to road accidents, and from blood pressure to heresies about hair. Perhaps this might have been avoided.

Notes on Books

Dr. C. PRICE-JONES originally published his well-known *Blood Pictures : An Introduction to Clinical Haematology*[6] in 1917 ; a second edition appeared in 1920, and now, with this long experience, he has brought this handbook up to date. The general arrangement remains the same, but newly described forms of disease, such as microcytic anaemia and agranulo-leucocytosis, have been introduced. The chapter on the measurement of the size of the red blood cells is now illustrated by the curves, with which the author's name is rightly associated, in health, in pernicious anaemia, and in microcytic anaemia. The coloured plates are admirable, and contain representations of all the normal and abnormal cells met with in the blood stream.

The psychology of the offender is being intensively investigated these days, and useful data are being accumulated by many institutions and persons. An inevitable drawback to this accumulation of attention is that the subject is apt to become dehumanized. The offender is only too easily regarded as a " case " or as an illustration of psychopathic tendencies, and too little as a living person. Doctors and laymen who are really interested in this most heartrending of all problems will be refreshed by a little book called *Psychology in Court*.[7] The author prefers simply to call himself " A Doctor," and " A Solicitor " has written a foreword. Some of our readers may penetrate the author's disguise and recognize the vivid style of an old friend, an energetic and warm-hearted observer of men. As he points out, the county courts and police courts supply ample material for study. Workmen's compensation, a formidable subject even to those with a special interest in it, is alive with problems. He covers a wide field of reflection, and his observations on nystagmus and mental deficiency, medical expert witnesses, and the mental injury which can be done by wrong handling in court all point to the same conclusion, that what is chiefly needed is more understanding of the point of view of the litigant in the county court and of the defendant in the police court. The average person who comes before the magistrates is poor, not only in pocket but in nearly everything else, and, being poor, he is weak and defenceless ; he does not known how to present his case, and quite often it is never presented. Undoubtedly the psychologist is needed at petty sessions just as he is in most other walks of life. His work has been done with great devotion and considerable success by probation officers, court missionaries, and voluntary helpers, chiefly with a religious motive. These workers should now be supported by others with scientific training.

A number of the *Researches*[8] published from the wards and laboratories of the London Hospital during 1932 have been reprinted in a bound volume. The selecting and reissue of these has been, as in previous years, undertaken by the Publications Committee of that institution, rendering it possible for an estimate to be made of the way in which the progress of scientific knowledge is being furthered there. The articles relate mainly to pathological and physiological topics, but there are several which deal practically with problems of diagnosis and treatment.

[6] *Blood Pictures : An Introduction to Clinical Haematology*. By Cecil Price-Jones, M.B. Third edition. Bristol: John Wright and Sons, Ltd. 1933. (Pp. 72 ; 5 coloured plates, 7 figures. 6s. 6d. net.)
[7] *Psychology in Court*. By A Doctor. London: Williams and Norgate, Ltd. 1933. (Pp. 131. 5s. net.)
[8] *Researches Published from the Wards and Laboratories of the London Hospital during 1932*. London: H. K. Lewis and Co., Ltd.

Fuso-spirochaetal Disease,[9] which forms the subject of a monograph by Dr. D. T. SMITH of Duke University, U.S.A., is not a conception which is current in this country. To be sure, the constant presence of spirochaetes and fusiform bacilli in the ulcerative type of angina associated with the name of Vincent is well recognized, and possibly the presence of these organisms in foul-smelling empyemata and lung abscesses has been observed from time to time, but it is doubtful whether any serious aetiological importance is attributed to them. The author's opinion would seem to be that the mouth spirochaetes, together with fusiform bacilli, cocci, and vibrios —all buccal inhabitants—are responsible for a long list of pathological states: Vincent's angina, pyorrhoea, gingivitis, various broncho-pulmonary conditions, noma, appendicitis, tropical ulcer, and hospital gangrene, to cite some of them. He admits that other factors, such as dietetic deficiencies, more particularly a deficiency of vitamin C, are necessary to set in train these disease states. Dr. Smith's thesis rests mainly on the presence of the four types of bacteria in these various conditions, and the success which sometimes attends the administration of organic arsenicals ; the attempts to reproduce experimentally these different clinical pictures which the author mentions are not very convincing.

The second volume of *The Nature of Disease Journal*,[10] by Mr. J. E. R. MCDONAGH, has now been published (the first volume appeared in June, 1932). The present number deals with arterial degeneration, shock, and infections from within.

The *Collected Papers*[11] emanating from the Middlesex Hospital Medical School in 1931–2 have been issued in a special folder. They are classified under the headings of clinical (nine articles), radiological (four articles), and physiology and biochemistry (fifteen articles). Reference to them is thus facilitated. These papers were previously published in a variety of medical periodicals, and are here brought together in a convenient form under the auspices of the Cancer and General Research Committee of that institution.

[9] *Oral Spirochaetes and Related Organisms in Fuso-spirochaetal Disease*. By D. T. Smith, A.B., M.D. London: Baillière, Tindall and Cox. (Pp. xii + 243 ; 53 figures. 26s.)
[10] London: William Heinemann (Medical Books) Ltd. 1933. (7s. 6d. net ; postage 5d. extra.)
[11] The Middlesex Hospital Medical School. *Collected Papers*, 1931–2.

Preparations and Appliances

MILK FOR ALLERGIC CHILDREN

Allergilac (Cow and Gate, Ltd., Guildford) is a powder preparation of cow's milk devised for use by allergic infants who have become sensitized to the proteins of cow's milk. The lactalbumin of milk is the commonest cause of symptoms, and in addition allergic children often have a pronounced deficiency in their power to secrete acid and hence cannot digest cow's milk, which has a high buffer value. Allergilac is prepared by first heating the milk, which coagulates much of the lactalbumin and denatures the casein. In addition sufficient lactic acid is added to bring the *p*H to 6.0. The preparation was originally made for the Great Ormond Street Children's Hospital, and it represents an interesting advance in the difficult problem of feeding allergic infants.

LIQUID EXTRACT OF HOG STOMACH

Hogastrin (Messrs. Giles, Schacht and Co., Clifton, Bristol) is a concentrated extract of hog's stomach in liquid form. The extract is prepared from the maws of freshly killed hogs, and the makers claim that this use of fresh material results in an extract of unusual activity. The extract has been tested clinically with favourable results in cases of pernicious anaemia. The difficulties associated with liver feeding in this disease are well known, and have led to an increasing popularity of the alternative method of treatment by administration of dried stomach or of stomach extracts. This extract has the advantages that it is highly active and quite palatable. The price is 20s. for a bottle of 16 fluid ounces, and a daily dose of 2 fluid drachms is equivalent to an ounce of fresh stomach. The cost of treatment is therefore quite reasonable.

BEIT MEMORIAL TRUST FOR MEDICAL RESEARCH

A meeting of the Trustees of the Beit Memorial Fellowships for Medical Research was held on July 11th for the election of Fellows and other business. The annual report for 1932–3, which was adopted by the Trustees, states that Fellowships during the year were held by twenty-five workers, this number including one special Fellowship of £1,000 in tropical medicine. The sudden death of Dr. N. U. Meldrum at the age of 25 cut short a career of much promise in biochemical research, and his loss is deeply regretted by all who knew his powers and his great eagerness for work. Among the distinctions gained last year by past Beit Fellows the Trustees record the election of Dr. A. S. Parkes to the Fellowship of the Royal Society, he being the fifth who has now received that honour. Professor D. T. Harris has been appointed to the chair of physiology at the London Hospital, and Professor I. de Burgh Daly to the chair of physiology in Edinburgh University. Dr. G. F. Marrian was awarded the W. J. Mickle Fellowship of the University of London for 1932, in sequence to another Beit Fellow, Dr. P. Eggleton, in 1931.

POLICY OF THE TRUSTEES

The deed creating the Beit Memorial Trust in 1909 gave the Trustees power after the expiration of twenty years to alter in some respects the regulations for award of Fellowships, and they have now resolved to exercise that power in one important direction.

The opportunities for medical research have altered greatly since the Trust was established. In 1909 there were in England only a few studentships, such as that of the Grocers' Company, which would enable a man who had no independent means to turn aside for some years from routine duties and attempt research in medicine or its allied sciences. The single gift of Sir Otto Beit, with its annual income of £11,000, straightway added thirty junior fellowships to the number. This benefaction a few years after Lord Iveagh's gift of £250,000 for the building and endowment of the Lister Institute marked the beginning of the great stream that now gives such enrichment of the opportunities for scientific medicine in England. Government help soon followed on an even greater scale, providing through the Medical Research Committee in 1914 and through the clinical units created by the Board of Education in 1919 an annual revenue now approaching £180,000 a year, of which a not inconsiderable part is used for maintaining junior men in research. It is therefore less difficult than it used to be for a young man of true ability to find an entrance to such work. But results of lasting value are rarely won in the apprentice years of investigation. The long devotion of a lifetime is often needed, and that cannot be expected unless to the ablest of the juniors a path is opened to senior posts where research may still be the chief pursuit. It is in this direction that the Beit Trustees believe they may now properly consider some change of policy in the administration of their trust.

The principle originally adopted was to choose men whose early performance in an academic career gave promise of powers for research. No attempt was ever made to influence Fellows to form a team for concentration on any given problem of research. Indeed, it is plain that any such attempt would have little momentum now in comparison with the sustained support and large financial aid that the Medical Research Council can give to such enterprises. The Trustees have sought no more than to ensure that these Junior Fellows should be well trained and that their ambition should be centred on the advance of medicine by research. The average achievement has been high, and many of the past Fellows, men and women, are now found to be strengthening laboratories at home or abroad in physiology, pathology, biochemistry, or zoology. Out of the total of 102 men who have completed the tenure of a Fellowship since the first election in 1910, twenty-two have received full professorships in various universities.

A PROFESSORIAL FELLOWSHIP

The men who worked in the subjects ancillary to medicine have easily found places in which they could continue for life a career of research combined with teaching. Pathology and physiology have their endowed posts. But it has been difficult for a man to remain in clinical research after the relatively short tenure of a Beit Fellowship. There was scant hope in this direction of any reasonably paid appointment in maturer life, and sooner or later he would have to pass either into the general diagnostic work of consulting practice or to a laboratory life remote from immediate contact with patients. Yet experience has shown unmistakably that medicine may look for practical advances at least as soon from those engaged in clinical research as from the pure laboratory worker. It is no disadvantage that the research worker should bear responsibility for the treatment of the sick ; their needs will concentrate his thoughts upon urgent problems of disease. Only it is essential that his mind should focus all his energies upon the chosen problem, and that it should be spared the dissipation of effort in the countless directions of clinical experience which on the other hand form the best training for the good diagnostician. Medicine has thus gained greatly from the sustained researches of Sir Thomas Lewis on disorders of the heart and of Professor E. Mellanby on rickets. Both these men were elected together as Junior Beit Fellows in the very first election of 1910. But the opportunities to continue to full fruition the work they had chosen came later through the policy deliberately adopted by the Medical Research Council that all possible assistance should be given to some senior men for the prosecution of research bearing directly on clinical problems. The Council has maintained one full-time senior post for such clinical research since 1916, providing a position equivalent to that of a university professor with assistants and laboratory facilities but also with direct control of a number of hospital beds where studies could be made of some chosen form of disease. This was the position which gave Sir Thomas Lewis his needed opportunity. Last year the Rockefeller Foundation gave permanent endowment of the post at University College Hospital and so enabled the Council to create a second post elsewhere. The Beit Trustees have now resolved to add a third by creating a Professorial Fellowship which may be held at some medical centre in Great Britain where adequate facilities for work can be provided. This Professorial Fellowship will be of tenure similar to that of a university chair, and the salary will absorb those of four or even five Junior Fellowships. It will not be required that the holder of the post shall have previously been elected to an ordinary Beit Fellowship. The present announcement of policy will not be followed immediately by an appointment to the post.

ELECTION OF NEW FELLOWS

The following elections to Fellowships were made by the Trustees:

Senior Fellowship (value £700 per annum).—Cuthbert Leslie Cope, D.M., M.R.C.P. To continue his work on the excretion of non-threshold substances and of sugars in nephritis. Place of research: Medical Unit, St. Thomas's Hospital.

Fourth Year Fellowships (value £500 per annum).—John McMichael, M.B., M.R.C.P. To continue his researches on enlargement of the spleen in human disease and its relationship to diseases of the liver. (Medical Unit, University College Hospital, London.) John Norman Myers, M.D., Ph.D. To continue his work on biochemical changes in hearts of guinea-pigs poisoned by diphtheria toxin and also on the production of active immunity through the slow absorption of all emulsions of bacterial toxins. (Pharmacological Laboratory, University of Cambridge.) Charles Amos Ashford, M.A., Ph.D. To continue his studies of the utilization of carbohydrate by brain tissue. (Dunn Institute of Biochemistry, University of Cambridge.) Frederick Horace Smirk, M.D., M.R.C.P. To continue his studies on water diuresis and the formation of œdema fluid, and to develop

his urinary test for early renal damage in man. (Medical Unit, University College Hospital.)

Junior Fellowships (value £400 per annum).—Arthur Sproul McFarlane, M.B., M.A. Biochemist to the Glasgow Royal Cancer Hospital. Proposed research: Physico-chemical nature of protein solutions and of suspensions of bacteria by measurement of the light-scattering capacity and of the sedimentation velocity in the field of the ultracentrifuge. (Institute for Physical Chemistry, The University, Upsala, Sweden.) Eric Stephen Horning, D.Sc., B.A. Cytologist to Cancer Research Committee, University of Sydney, N.S.W. Proposed research: To investigate by micro-incineration the relative distribution of the inorganic radicles of normal and tumour cells that have been exposed to various types of radiation. (Laboratory of the Imperial Cancer Research Fund, London.) William John Dann, B.Sc., Ph.D., Grocers' Research Scholar. Proposed research: The transmission of food vitamins by milk and the placenta, and the possible function of ascorbic acid (vitamin C) in oxidation mechanisms of the cell. (Nutritional Laboratory, University of Cambridge.) Brian Gilmore Maegraith, M.B., B.Sc. Proposed research: Methods of diagnosis and treatment of cerebro-spinal meningitis. (Dunn School of Pathology, University of Oxford.) Philip Jocelyn George Mann, B.Sc. Proposed research: Functions of peroxidase as being chiefly an anabolic enzyme, and the action of vitamin B as a possible co-enzyme of the lactic dehydrogenase system. (Dunn Institute of Biochemistry, University of Cambridge.) Maurice Stacey, B.Sc., Ph.D., Demonstrator in Chemistry, University of Birmingham, 1929–32. Proposed research: Investigation of carbohydrates yielded in the growth of moulds and of bacteria. (Department of Biochemistry, London School of Hygiene and Tropical Medicine.) Arthur Henry Hughes, B.A., Research Student, Department of Colloid Science, Cambridge. Proposed research: Reactions in surface films of molecules of biological importance, dealing in particular with haemoglobin and the enzymes responsible for snake venom haemolysis. (Department of Colloid Science, University of Cambridge.) Alison Sarah Dale, B.A. George Henry Lewis student. Proposed research: Processes underlying the staircase phenomenon in amphibian and mammalian hearts. (Pharmacological Laboratory, University of Edinburgh.)

All correspondence of Fellows and candidates should be addressed to Professor T. R. Elliott, M.D., F.R.S., honorary secretary, Beit Memorial Fellowships, University College Hospital Medical School, University Street, W.C.1.

OXYGEN ON THE EVEREST FLIGHT

BY

L. V. S. BLACKER
CHIEF OBSERVER

It was quite clear that no flight over the mountains could possibly be carried out unless the pilot and the observer were provided with a supply of oxygen which was both adequate and reliable. It was further quite certain that no human lungs could stand the strain of going without the assistance of oxygen, and, moreover, that if the oxygen were suddenly to fail for any reason at any height over 25,000 ft. a disaster of the first magnitude would almost certainly ensue, because the pilot would lose consciousness and the aeroplane go out of control. Should such a failure take place during an ordinary high flight or, for instance, on an attempt on the height record carried out over low-lying country, there would be a very good chance that the pilot could tear off his mask and regain consciousness after the machine had, by itself, dived or spun down to lower levels. Over high mountains the machine would hit the cliffs or the crags and destroy itself long before the pilot could possibly regain consciousness and control. Even should he escape this disaster, a shortage of oxygen brings the insidious dangers consequent on dulling of perception and judgement, and loss of muscular strength, in themselves dangers not to be ignored.

Fortunately, one of the first of the facilities which had been so generously placed by the Air Ministry at the disposal of the expedition included access to the experience and resources of the Royal Aircraft Establishment. The advice of the scientists was definite and unswerving. Oxygen should be inhaled, from the ground level up, in a tiny but progressively increasing trickle until a maximum flow was reached at 35,000 ft. It is obvious that, at heights of about 30,000 ft., however much oxygen may be given (at any rate, applied through a mask in the ordinary way) this cannot be inspired at a pressure greater than the atmospheric pressure, which is, at that height, roughly only a fifth of the normal. Hence, even a full ration of oxygen will, above 30,000 ft., leave the aviator slightly breathless, especially if he has any work to do—a breathlessness which becomes somewhat pronounced when the 35,000 or the 40,000 foot mark is passed.

The personnel of the Houston flight were tested in the great steel chamber of the Royal Aircraft Establishment. Thanks to the comparative youth, combined with the virtuous pasts, of those who were to be pilots and observers, all passed through this test with credit, and satisfied the scientific examiners in such recondite matters as pulse beats and blood pressure.

PREPARATIONS FOR THE FLIGHT

To hark back to the preparations of early 1932, there at once loomed the question of the steel cylinders in which the gas was to be carried. Few, if any, flights previously made had necessitated keeping the aviators through as long a period as two hours, as this did, at something like 32,000 ft. Hence a large amount of oxygen was necessary, especially as the rate called for at the top end of the climb was just over ten litres per man per minute. The weight of the cylinders to carry all this gas was an important factor in the loading of the aeroplane, and a factor which affected its ceiling very definitely. Fortunately, it was just about at this stage that Messrs. Vickers Armstrong had succeeded in putting into production cylinders of a new type made of an alloy steel known as vibrac, and without these the flight would have been almost impracticable. The old type of cylinder, made of carbon steel, weighed twice as much as the vibrac cylinder, and was, moreover, considerably less safe to handle, especially under conditions of exposure to very strong sunlight. Not only is the vibrac cylinder half the weight of the carbon steel equivalent, but it possesses the additional advantage of not being liable to burst dangerously. For various reasons, it was not possible to employ either oxygen generators, liquid oxygen, or intramuscular injections of the gas.

Then came the question as to what quantity of gas should be carried, and here again the valuable experience and advice of the Royal Aircraft Establishment came to our aid. Should the machine fly comparatively low, and then ascend at the last possible moment to the great height required to surmount Everest, the amount of oxygen called for would be comparatively small. Other factors, however, were in the way of this course being adopted. If we were to fly as low as possible we would save on the oxygen and its weight, and be able to carry more films for survey work; if, on the other hand, we flew high we should save on the photographic gear, but consume much more oxygen and, to boot, take a slightly greater risk of oxygen failure. Both these variables had to be worked in to the performance of the engine and its supercharger, of which the "rated altitude" was 13,000 ft.; that is to say, it is at this altitude that this particular variety of Pegasus engine, with its 7½ inch supercharger, does its best work in terms of fuel consumption, speed, and climb, which are in turn dependent on propeller thrust. It will be seen that a great deal of calculation and the drawing of many graphs was necessary before a compromise could be arrived at which gave us the greatest efficiency. There was even a political factor in the question, which was the necessity for crossing the frontier of Nepal at such a height that the uninstructed inhabitants of the outlying primitive districts, who had never seen an aeroplane before and probably not even ever heard of one, would not be unduly perturbed.

Finally, we found that we could carry four cylinders in each aeroplane, each of 750 litres capacity, which made a total of 3,000 in all; that is, 1,500 litres per person. The fourth cylinder was, it was decided, to be

simply a reserve for emergency only, not to be touched except in the case of any failure of the normal supply from the other cylinders; and to make this safeguard a reality all the piping and instruments of the oxygen were duplicated.

THE APPARATUS IN DETAIL

The oxygen cylinders, then, are carried in racks in the fuselages of the machine, and the gas is led through valves and high-pressure copper piping to a special oxygen instrument board in the pilot's and observer's cockpits respectively. First, it passes through a gauge which indicates the pressure in atmospheres in the cylinder—the initial pressure is 120 atmospheres, and the cylinders will be virtually empty when the pressure drops below thirty. From the pressure gauge the gas passes to the regulating valve—this incorporates also a safety-valve—of which the function is to reduce the pressure from 120 atmospheres (namely, 1,800 lb. per square inch) to that at which the aviator wishes to breathe it (namely, from about 20 to 60 lb. in the mask). The next stage takes it through the electrical heater, and thence to the flowmeter, the dial of which is graduated in tens of thousands of feet of altitude. The wider the handle of the regulating valve is turned the more gas passes through the flowmeter, and the greater is the height registered by its needle. The electric heater is a fitting of vital importance, and guards against the freezing in the tiny orifice of the regulating valve of any trace of moisture in the gas. Such a mishap would cause loss of consciousness in thirty-five seconds. In manufacture, however, the gas is dried until its water content comes down to the amazingly infinitesimal figure of 2.5 volumes of water vapour per million of oxygen. The aviator, therefore, needs only to adjust the regulating valve until the reading of the flowmeter corresponds to the reading of the altimeter of the aeroplane. To be more precise, he anticipates the reading of the altimeter and gives himself sufficient oxygen for 5,000 ft. as soon as he leaves the ground, increases this to the 10,000 ft. rate when he reaches 5,000, to the 15,000 when he reaches 10,000, and so on.

From the flowmeter the gas is ready to breathe, and passes to a bayonet joint mounted on the instrument board. The object of the bayonet joint is to enable the aviator to detach himself quickly from the aeroplane should he be under the painful necessity of executing a parachute jump. Into this is plugged a detachable T-socket, which can be easily pushed in or pulled out by the pilot or observer, as the case may be, being secured only by a quarter turn. To this is connected a flexible tubing, which carries the gas to the mask. Several sorts of tubing were tried, and eventually we used flexible metallic tubing. This answered excellently, except that on one occasion one of the observers broke his pipe by treading on it—a test it was scarcely designed to withstand.

The mask itself constituted one of the greater afflictions which had to be borne by the inhabitants of the high-flying aeroplane. Many were the adjustments of the straps and the refixing of them which bound the mask to the unfortunate aviator's helmet. The final solution of the problem called for a quadruplex arrangement of metallic springs covered with leather, sewn on to the back of the man's helmet immediately over the crown of his head. A fibre mask of the standard pattern was distinctly uncomfortable, and projected very far to the front, so that it caught up in everything, more especially in the cameras which the observer had to handle. In fact, it made it almost impossible for him to look through the ordinary viewfinder. An india-rubber experimental pattern produced by Messrs. Siebe Gorman themselves presented many advantages, however, and was tried with success in some of the later high flights. The mask fits over the lower part of the face, covers both nose, mouth, and chin, and is not, however, expected to be completely gastight. It possesses, in fact, a couple of air-holes, because the individual does not breathe pure oxygen on his way up to 30,000 ft., but oxygen mixed with a decreasing quantity of air, drawn by suction from the atmosphere, which comes in through these holes. It is these holes, also, which let out the expired gases. The whole arrangement is a trifle unscientific, because some of the oxygen is blown out and wasted in the act of breathing; and, moreover, we found it necessary to plug these holes with hastily extemporized corks when the 30,000 foot mark was passed, in order to ensure that the observer should get his fair ration of oxygen undiluted by what in those levels passes for an atmosphere.

In the front end of each mask is mounted the microphone of the intercommunication set, by which the observer and pilot can speak to each other. The presence of this was a troublesome necessity, because it lengthened the already excessive projection of the mask to the front. Yet again, the switch of the microphone had to be in such a position that it was apt to knock against the camera and so switch itself on, to the intense indignation of the pilot, whose ears were immediately filled with buzzings and cracklings.

FUTURE POSSIBILITIES

Thanks to the skill and experience, both of the experts of the Royal Aircraft Establishment and of Messrs. Siebe Gorman, the whole arrangement worked satisfactorily, and indeed very efficiently, but there is little doubt that oxygen gear will have to be redesigned before high altitude flights of long duration, involving real mental and physical work on the part of the personnel, can come to be regarded as an everyday proposition. For as an everyday proposition such flights will certainly come to pass. One foresees air survey carried out at great heights of 30,000 ft. and over, with 36 square miles mapped, or possibly much more, by each exposure of the camera. This calls for an everyday routine use of oxygen. Then again, long-distance air liners will, before many years have passed, fly in the fringes of the stratosphere at 30,000 and even 35,000 ft., in fact as high as the walls of the arteries of their passengers can comfortably stand. Everything points towards this; the aeroplane itself, whether with fixed wings or of the autogyro type, is a far better machine at a greater height, and flies more easily through the air, with less "drag" or parasitic resistance. The splendid engines of to-day can be supercharged to such a degree that there will be little loss of power in the rarefied air six miles up. One factor is yet lacking—the variable-pitch propeller. When this comes we shall find that aeroplanes, having landing speeds of very moderate order, will be able to fly not slower but faster as they get up to the great heights, so that machines which can take off at forty or fifty will be able to fly at 300 or 400 miles an hour in the long-distance inter-Continental air lines of a very few years to come.

It is quite easy to see how this power given to the captain of choosing his own height level will enable him, more often than not, to find a favourable wind, where the low-flying pilot of to-day is frequently delayed and held up. Before that can come to pass, however, designers must turn their attention to hermetically sealed passenger cabins, provided with carefully thought-out supplies of oxygen, with chemical means of absorbing the exhalations from the lungs, and even with means of maintaining a slight positive pressure inside these closed cabins. The possibilities of the future are of a nature which astonish one at one's own moderation in sketching them out.

The annual report of the Victoria Hospital for Children, Tite Street, Chelsea, records an increase in 1932 in the average number of beds occupied—namely, 102.2, as compared with 96.95 in 1931, and a reduction in the average total weekly cost per patient of 6s. 8d. Two new special departments have come into being—namely, an ear, nose, and throat department, and one for orthopaedics. The number of patients benefiting by the private wards has increased each year. In spite of special efforts to economize in all directions, there was an adverse balance on the year of just over £400, part of which was in respect of the Victoria Convalescent Home at Broadstairs.

British Medical Journal

SATURDAY, JULY 22nd, 1933

HAEMOLYTIC ANAEMIA IN EARLY LIFE

Professor Leonard Parsons and his co-workers at the Children's Hospital, Birmingham, are publishing a series of papers in the *Archives of Disease in Childhood*,[1] entitled "Studies in the Anaemias of Infancy and Early Childhood"; and in the current issue, for June, they reach the subject of haemolytic anaemia in early life. In dealing with this difficult and rather confused group of anaemias they rightly pay considerable attention to questions of nomenclature and classification. They are dissatisfied with the use of the word "haemolytic" as a group name in anaemia, on the ground that it lays too much stress on the process of destruction of the red cells in the circulating blood (haemolysis) to the apparent neglect of the harm that may be accruing to the haemopoietic centres. Adopting Boycott's term "erythron," which has proved so useful in connoting the tissue made up of the circulating red cells and the cells in the marrow and elsewhere from which they arise, it is suggested that the term "erythronoclastic" might well be substituted for "haemolytic." In their classification the authors divide the erythronoclastic anaemias of early life into two main groups: those occurring in the neo-natal period (the first four weeks of life), and those developing in later infancy and childhood. In the first group they describe, in the early part of the neo-natal period, anaemia of this type associated with hydrops foetalis, with icterus, or unaccompanied by either of these conditions. Of these the form with icterus gravis, sometimes familial, is the commonest, and has been most studied. Later in the neo-natal period a similar anaemia may also occur without oedema or icterus, and certain of such cases may develop a clinical picture resembling that of the anaemia of von Jaksch.

The erythronoclastic anaemias of later infancy and childhood are described as falling into four groups: acute (Lederer type); subacute; subchronic (von Jaksch syndrome); and acholuric jaundice. In any of these, but most of all in the more severe acute cases, there may be indications that the morbid process affecting the erythron is also acting on the thrombocyte or myeloid leucocyte systems. Out of much that is of value in the careful clinical and pathological studies of these disorders which are presented by the authors, perhaps most interest will be attached to their series of nine examples of the most acute variety, and to their views on the so-called von Jaksch's anaemia. In 1925 M. Lederer described "a form of acute haemolytic anaemia probably of infectious origin," and in 1930 he published further examples, bringing his total number of cases up to six, of which half had occurred in children aged 3 years or less. In 1931 Professor Parsons described independently four cases which Lederer recognized as of the same type as his own, and the present study of the condition is based on the experience of nine examples. The disease develops with dramatic suddenness, itself suggestive, in the absence of obvious bleeding, of acute haemolysis; and the extreme pallor of the child is found to be due to a severe anaemia of the hyperchromic type, with evidence as a rule of much damage to the marrow. So severe is the haemolysis that jaundice and even haemoglobinuria may be present. From their experience at Birmingham the authors lay great stress on the value of blood transfusions in tiding the child over the critical onset, and insist that they should be given early, and repeated if necessary. Out of their nine cases eight recovered, sometimes rapidly, but in other instances through a period of nutritional anaemia requiring iron therapy for complete restoration to health. As regards the causation of this form of anaemia the authors declare themselves baffled: it could well be explained on Lederer's hypothesis of an infectious process, but they have found no constant evidence to support this view.

Among the blood diseases of early life there is perhaps none more mysterious than von Jaksch's anaemia. Obscure in its causation and confused in its definition, the one thing certain about it is that it has become progressively rarer in this country during the last twenty years, although, characteristically enough, the cause of its diminished frequency is an added mystery. It is doubtless true that all authorities do not agree in what they describe as von Jaksch's anaemia, and it is reasonably clear that what now goes by his name in this country is not exactly the condition described by von Jaksch in 1889. For these reasons it is probable that many will agree with Professor Parsons's suggestions that the term "von Jaksch's anaemia" would be better dropped, though it may be hard to foretell which will die out first—the disease or its title. In this state of affairs it is hardly to be supposed that an aetiological hypothesis can be evolved at present which will be generally accepted: but in the work under review the authors, accepting J. H. Thursfield's description of the disease as their standard, put forward the view that this type of anaemia should be included in the erythronoclastic group, the process being of long duration, but ultimately ceasing. For the evidence on which this view is based the reader must be referred to the original communication.

[1] *Archives of Disease in Childhood*. Issued by the British Medical Association. Yearly subscription (six numbers), 25s.; single number, 4s. 6d.

TWENTY-ONE YEARS OF NATIONAL HEALTH INSURANCE

The luncheon which was arranged for July 17th in celebration of the twenty-first anniversary of the coming into force of the first National Health Insurance Act, and of which a full report appears in our *Supplement* this week at p. 43, was a distinct success. The Minister of Health, Sir Hilton Young, was in the chair, and there was as complete an attendance as was possible of those who were associated with the inception and the earliest stages of the National Health Insurance system: indeed, the presence of some of those seated at the "top table" must have been a reminder to many of facts and incidents which they had almost completely forgotten. It was a pleasure, for instance, to notice how appreciative the audience was of a reference to the services of Mr. W. J. Braithwaite—services much less often called to mind than they should be. We need hardly say that the most outstanding of the missing figures—the late Mr. Masterman and, above all, the late Sir Robert Morant—were in the memory of all. Mr. Stanley Duff made some careful remarks in proposing the health of the chairman, but the speeches were properly restricted to that of Sir Hilton Young in proposing "National Health Insurance" and that of Mr. Lloyd George in reply. Neither could have been bettered.

Mr. Lloyd George has lost none of his charm as an orator, and his speech was indeed delightful, both in matter and in manner. He was fully entitled to his pleasant hits at old colleagues and his cheerful triumphs over old opponents. No one could fail to see in him the intrepid pioneer of a great idea who had by his zeal and persistence brought it into practical effect—albeit with a few major mistakes and many minor imperfections—to the lasting relief and benefit of millions of citizens. "No scheme," as he said, "was ever more needed or ever less wanted" at the time of its enactment. This is true with regard to the medical profession as well as to the general public. And if it is certain, as Mr. Lloyd George was justified in claiming on Monday, that the medical profession would not now wish or consent to go back to the old "club days," this is in large part due to the efforts of the profession itself whose help in moulding the National Health Insurance scheme into an acceptable form has now at long last been handsomely acknowledged by its author.

Among the most interesting and significant features of this commemoration are the notices and comments which have appeared in the public press, both before and afterwards. Some of them have been quite unexpected, almost astonishing. Those by the medical correspondent of the *Times* are particularly welcome. A re-reading of old articles and reports of speeches reveals, as well as some really statesmanlike utterances, an immense bitterness and verbal extravagance which, happily, as Mr. Lloyd George said, evaporate from a healthy mind. In contrast, to-day, whatever imperfections are noted, it is recognized and proclaimed that the scheme is, in general, working well; is evoking more and more co-operation rather than the old mutual antagonism among the groups concerned with its success; and is achieving at least some of the chief ends which it set out to attain. Yet complacency is the last thing that is needed. The limitations of the National Health Insurance scheme are notorious; its machinery is still vastly complex; its objects as a public health service on the one hand and a scheme for the economic relief of the necessitous on the other are not harmoniously blended; it has features which are at least conducive to large financial waste, and others which are still not free from the danger of untoward psychological effects, both on the profession and on the insured population. Though at a twenty-first birthday party it is proper that emphasis should be laid on all the good that has been done and on the attainment of a healthy manhood, the years to come may be made even more fruitful by a careful consideration of such major questions as those which have been recently asked by Sir Henry Brackenbury (see *Supplement*, July 15th, p. 25) as well as by a removal of those minor grievances and discontents to which the attention of the Ministry of Health has still to be called from time to time by the Insurance Acts Committee and others.

CONSULTANTS AND THE L.C.C.

The attention of consultants and specialists in London is drawn to the correspondence, published in this week's *Supplement*, which has passed between the Council of the British Medical Association and the Central Public Health Committee of the London County Council between April 13th and July 7th. Those who are unfamiliar with the controversy between the L.C.C. and the consultants are referred to earlier issues of the *British Medical Journal*. Briefly, it was felt that the way in which the L.C.C. set about reorganizing the consultant and specialist services of the Council's hospitals without seeking the co-operation of that section of the medical profession it intended to employ was not such as would be in the best interests of the service. Objections were also raised to certain of the actual terms and conditions of service. As an *impasse* had been reached in the negotiations between the L.C.C. and the consultants (through the medium of the Metropolitan Counties Branch of the B.M.A.), it was decided in April that four members of the Council of the B.M.A. should represent the consultants in further conference and communication with the L.C.C. The result can be seen in the published correspondence. The Council's representatives have failed to advance matters as far as had been wished. The final letter from the L.C.C., dated July 7th, is a statement that the L.C.C. does not intend to afford that frank and free discussion which the consultants and the Council of the B.M.A. consider to be necessary before any final decision is reached on the constitution of an important branch of medical service in London. In this the L.C.C. has ignored both the wishes and the example of the Ministry of Health. Further, it is interesting to observe that in the letter from the L.C.C. dated June 23rd a great deal of attention is given to Section 13 of the Act, and that appreciative reference is made to the London Voluntary

Hospitals Committee. So far as we know the Central Public Health Committee has made no attempt to consult this committee on the matters in question, in spite of the public statement made by the chairman and secretary that the London Voluntary Hospitals Committee was willing to act as mediator. There seems no advantage in the "wide interpretation . . . placed on the Section by the Council" if no attempt is made to apply it; but the implied obligation is noted. At this juncture we think that it is well for the consultants of London to take stock of their position as a section of the medical profession which has been reluctant to organize itself so that it may have a medium for the expression of collective opinion on matters which affect them collectively, and a machinery for taking action in accordance with their wishes. In the present controversy some consultants have criticized the B.M.A. for some of its actions in the earlier stages. Such criticism is of course always possible and sometimes helpful, but it comes more legitimately from those who had previously taken their full share of responsibility. The consultants of London ought to exercise a powerful influence through the Metropolitan Counties Branch of the B.M.A.; and if at the onset of the dispute they had been more fully organized and represented, they could have gained far more ground than they have done. Nevertheless, without any wish to score debating points, something has been secured, and the L.C.C. has taken the advice of senior members of the profession in the selection of candidates for part-time posts at the L.C.C. hospitals. The consultants of London may have been led to realize that such disputes as the present are apt to involve very wide issues and that they should have some method of achieving early and co-ordinated action. If the consultants at any time express a wish that the Council of the B.M.A. should take further action in such matters on their behalf the Council will certainly be willing to accede to their request.

WELFARE OF THE BLIND

The report, for 1931–2,[1] of the Advisory Committee on the Welfare of the Blind to the Minister of Health might well be taken as an example of the danger of uncorrected figures. It would be easy to cite some of the figures in this report so as to give an impression that blindness was increasing in this country with great rapidity. In 1919 the blind register totalled 25,940—a ratio of one blind person to every 1,451 of the general population. In 1932 the register totalled 62,079 and the ratio was 1 to 640. Such figures as these, especially when we remember the advances in the care of sight and the prevention of disease, are startling, and the report explains the apparent contradiction. The increase in the blind population has been mainly in the number of blind persons over 50 years of age. The increase in the group accounts for 98 per cent. of the whole. The age group up to 21 shows a considerable decrease, the figure for the one year showed a lessening of 440. These figures confirm the view that the measures taken by public health and school medical authorities for the prevention of infantile blindness and for the preservation of the sight of school children are having increasing effect in restricting the number of blind persons who become blind in early life. The increase in the total roll of the blind probably does not indicate an actual increase, but a greater disclosure of existing blindness previously unknown. There are now substantial benefits available for the blind and every inducement for these to register and so take advantage of them. These advantages can be shown in the extent of the expenditure on the blind by national and local funds. The blind pension for those over 50 years is provided by the Exchequer. In 1921 there were 7,826 pensioners, in 1932 there were 21,057, at a cost of £525,000. At the present time no less than 87 per cent. of those in the pension age group take advantage of the provision. The local authorities spent in 1930–1 no less than £778,339, nearly double the sum of the previous year. But this increase is largely one of book-keeping, owing to the altered arrangements for the transfer of contributions from the Exchequer. The facts set out above point to the great importance of the proper certification of blindness. In 1930 the Minister circularized local authorities on the desirability of making arrangements for securing that before a person's name is added to the register he is examined by a medical practitioner with special experience in ophthalmology, and by him certified to be blind within the meaning of the Blind Persons Act. Many local authorities have already taken the necessary steps to secure such proper certification. Certain inquiries have been set on foot. Despite the decline in the number of blind under the age of 5 years, it is thought that further details of the causes of the blindness in this group might lead to suitable preventive measures to obtain a further reduction of blindness in infants. Hereditary blindness is also being inquired into, so that there may be some better basis on which to advise blind persons who are uncertain whether they may safely marry and have children. Further, it is thought that some special institutional provision should be made for two classes of blind persons: those blind and mentally defective over the age of 16 years; and those who, besides being blind, are deaf. Of the latter there are no fewer than 2,803, of whom 688 are so deaf as to need a deaf-and-dumb interpreter. In both these classes maintenance and oversight is beyond the capacity of the ordinary family, and they are not readily received in voluntary institutions.

[1] Tenth Annual Report of the Advisory Committee on the Welfare of the Blind, 1931–2. London: H.M. Stationery Office. 1933. (6d. net.)

PREVENTION OF TUBERCULOSIS

In the annual report for 1932 of the council of the National Association for the Prevention of Tuberculosis attention is called to the publication of the conclusions reached as a result of the Tyneside inquiry, a summary of which was published in the *British Medical Journal* of June 10th (p. 1018). Poverty was indicated as a cause of tuberculosis, which in many cases seemed to be paramount, but under-nutrition due to an inadequate and improperly balanced diet was also concerned as a secondary factor. The hope is expressed that intensive investigations of a similar kind may be initiated in other parts of the country, with special reference to the detection of the varying local circumstances which may be concerned in the incidence of tuberculosis. A new edition has been prepared of the *Handbook of Tuberculosis Schemes*; this gives in convenient form a survey of the official machinery in this country for combating

tuberculosis. Propaganda work has suffered in the last few years owing to the demand for economy, but the council stresses in its report the smallness of the actual cost in money of an intensive series of educational meetings, as conducted by the National Association, and the great degree of public interest which can thus be aroused. By the expenditure of a few pounds, chiefly in advertising, an adequate popular course of instruction can be conducted. Education of this kind is also being promoted by means of the facilities presented by such groups and societies as teachers' training colleges, Toc H branches, Red Cross and St. John detachments, and women's institutes. It is announced that the sales and distribution of leaflets and pamphlets have much increased during the year under review, and new editions are being issued from time to time. Care committees for patients are increasing in number, and many are definitely affiliated to the National Association, gaining thus certain definite advantages. Two charts in the 1932 report show the death rate from tuberculosis in quinquennial periods for England and Wales from 1861 to 1931, and for Scotland from 1871 to 1931. Four other charts indicate the comparative death rates from tuberculosis in administrative areas throughout Great Britain for 1931. The sanatorium colony at Burrow Hill has continued to combine successfully the treatment and technical education of youths in the age period 14 to 19. Although temperamental or educational handicaps as well as physical incapacity prevent about two in three from completing the full course of training, the after-results in those who are able to continue to the end remain surprisingly good, settled employment having been found for two-thirds of them, in spite of the depressed state of the labour market.

ENTERIC IN SOUTH AFRICA

That typhoid fever is still an ever-present danger to the community in South Africa is evident from the fact that the Northern Transvaal Branch of the Medical Association of South Africa thought it desirable to hold a symposium at Pretoria in March last in order to discuss the various aspects of the disease. The symposium is reported in the *South African Medical Journal* of May 13th, and from it we learn that, while typhoid presents on the whole the same natural history in South Africa as in Europe, the medical officer of health in South Africa is confronted with three formidable obstacles in his campaign against the disease, two of which, at any rate, are not encountered by his professional brother in England. These are: the absence of any system of local government in most rural districts; the frequency of typhoid and of carriers among the natives, who are difficult to control from the preventive point of view; and the plague of flies. In most of the country districts there is a complete absence of any sanitation worthy of the name: this defect can be remedied only by the education of the governing classes in matters of public health. The natives and the flies present special problems. Dr. Laing lays much stress on the importance of the carrier in keeping up endemic typhoid. While this is true, it may be pointed out that in the United Kingdom the reduction of typhoid began before the carrier or even the *Bacillus typhosus* was recognized, and that it was due to the improvements in sanitation carried out by the Local Government Board. The provision of pure water supplies and the effective treatment of sewage will go a long way towards the abolition of typhoid, in spite of the existence of carriers. Apparently a large number of natives are connected with the dairy trade, but we learn from Dr. Cluver that the illnesses of the native milkman "are not generally a matter of much concern to his European employer." If this is true of employers in general then they deserve all they get in the way of typhoid and other infections. The preventive measures advocated by Dr. Cluver are admirable, but apparently he has difficulty in convincing the public of their necessity. The contribution which most arrests attention is that by Dr. Pijper on the bacteriology of the enteric fevers. He has come to the conclusion, after many years' experience, that the Widal test is inefficient. He has found it to be positive in only 40 per cent. of cases in which the typhoid bacillus was demonstrated in the patient's blood. He has therefore replaced it by the complement-fixation test, which he has observed to be positive in at least 90 per cent. of cases as early as the fifth day. Dr. Pijper makes out a good case for his opinions, which are based not only on his experience, but also upon arguments derived from the behaviour of the H and O forms of the *Bacillus typhosus* and their antibodies. He states that his views are gaining ground, but he does not appear to have converted British bacteriologists; time alone can show whether he is right. Dr. Pijper makes two statements with which we cannot agree. The paratyphoid fevers are, he tells us, absent from Pretoria—to the credit of the health authorities—because "paratyphoid requires much more unhygienic conditions than typhoid does." Again, he states that the prognosis of paratyphoid is "substantially the same" as that of typhoid. Neither of these statements is in accordance with experience with paratyphoid elsewhere. The treatment of typhoid recommended is much the same as has been adopted in England for many years past. We miss, however, any reference to the treatment by baths. As hardly an allusion is made to antityphoid immunization we take it that it has not been attempted to any extent in Pretoria.

CATARRH OF THE SMALL INTESTINE

Relatively little attention has been paid to the clinical picture, described by Porges in 1928, of catarrh of the small intestine without simultaneous catarrh of the large bowel. The cardinal symptoms were an increase in faecal soaps after a test meal, this being unaccompanied by disturbances of secretion of pancreatic juice and bile; hypermotility of the small intestine (demonstrable by the passage of contrast meals along the gut, using *x* rays); complaint of discomfort after food, feelings of heat and perspiration, vertigo, and sometimes fainting attacks. In some cases there were colicky pains, localized to the left of the umbilicus, and pain on superficial pressure in the same region; and occasionally diarrhoea was noted. Secondary symptoms were: eczema, pruritus, and urticaria; while the author has on some occasions also observed hypochromic anaemia and Hunter's glossitis. Constipation is frequent.

R. J. WILLAN: INTESTINO-VESICAL FISTULA

FIG. 1.—Case 2. Resected colon showing thickened area in wall with two well-marked diverticula surrounded by inflammatory fibrosis. The arrow indicates site of diverticulum leading to fistula.

FIG. 2.—Case 5. Colon divided longitudinally. Large ulcerated area of growth is seen almost blocking the lumen. A pin shows the site of the fistula

Ft. ROBERTS: X-RAY TREATMENT OF MALIGNANT DISEASE OF THE LUNG

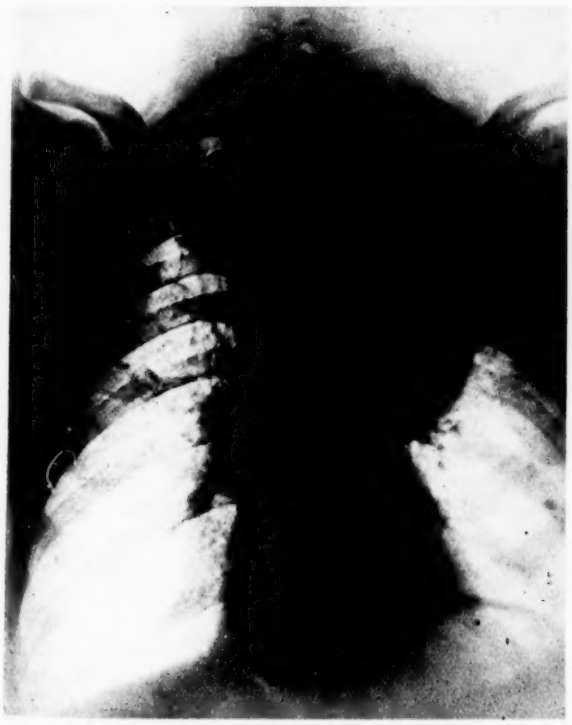

FIG. 1.—Case 5. E. S. April 10th, 1931. Tumour of left lung. Collapse of left upper lobe.

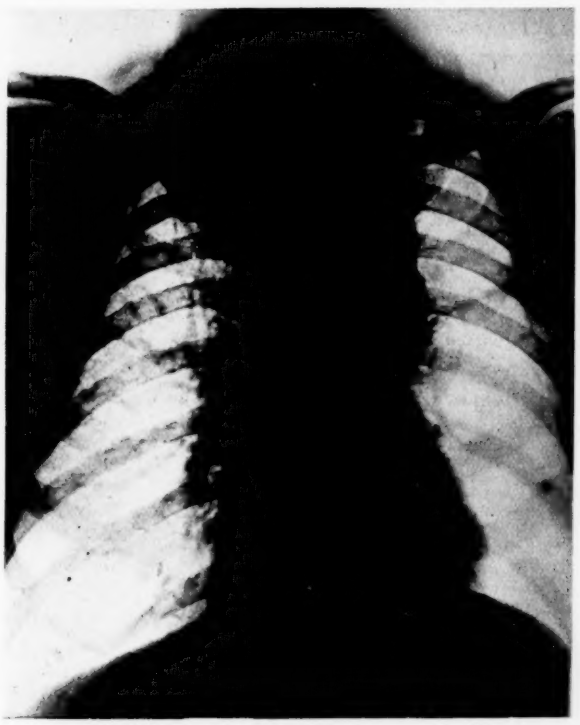

FIG. 2.—Case 5. June 3rd, 1931. Tumour greatly diminished. Left upper lobe re-expanded.

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FIG. 1.—Case 1. A.-P. view showing alignment in plaster immediately after accident.

FIG. 2.—Case 1. Lateral view in plaster immediately after accident.

FIG. 3.—Case 1. A.-P. and lateral views three months after accident showing bony union in correct alignment but without any apposition.

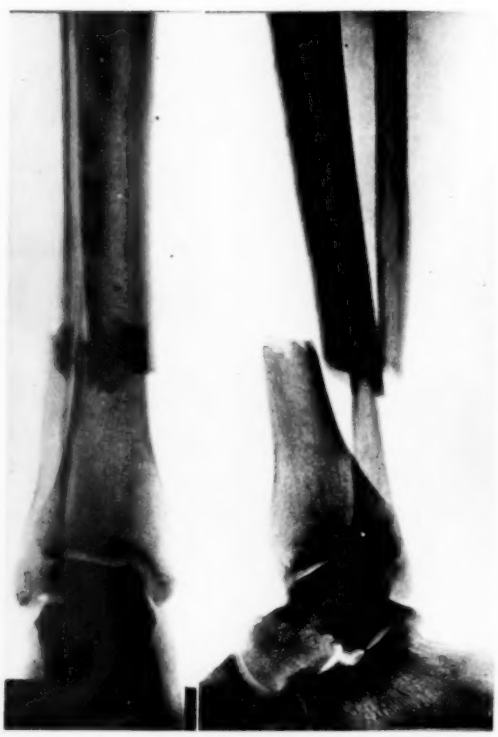

FIG. 4.—Case 2. A.-P. and lateral views before reduction.

FIG. 5. Case 2. A.-P. and lateral views showing result of reduction by manual traction and plaster

E. N. WARDLE: FRACTURES OF BOTH BONES OF THE LEG

FIG. 6.—Case 3. A.-P. and lateral views before reduction.

FIG. 7.—Case 3. A.-P. and lateral views after reduction by manual traction and plaster.

ALLAN WARNER: EPHELIS AB-IGNE

FIG. 8.—Case 3. A.-P. view. Five months after accident. Note alignment is worse than before; union only just commencing.

FIG. 9.—Case 3. Lateral view.

Showing well-marked pigmentation of legs and thighs. Eruption was of chocolate colour with macular mottling.

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GORDON HARROWER: TREATMENT OF CYSTIC HYGROMA OF NECK BY SODIUM MORRHUATE

FIG. 1.—Cystic hygroma of neck in an infant one month old

FIG. 2.—Cystic hygroma of neck after treatment by sodium morrhuate injection

F. A. E. SILCOCK: HERPES ZOSTER BRACHIALIS WITH CONCURRENT VARICELLIFORM ERUPTION

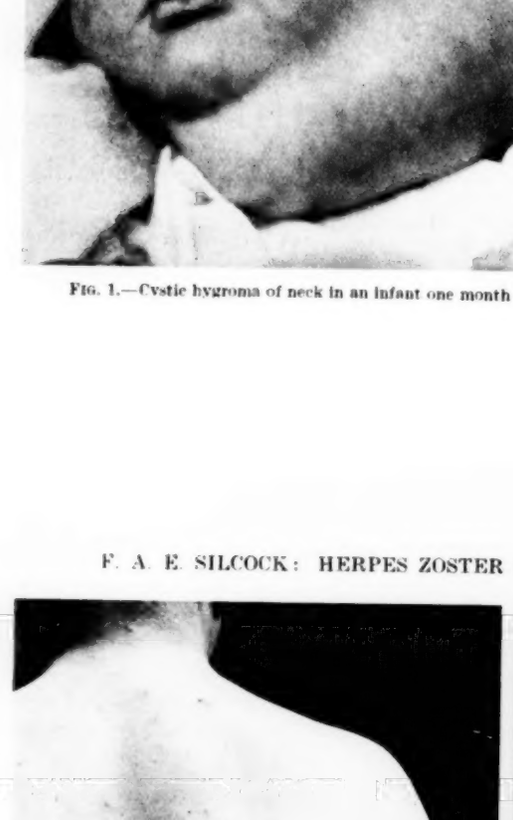


FIG. 1.—Back view.

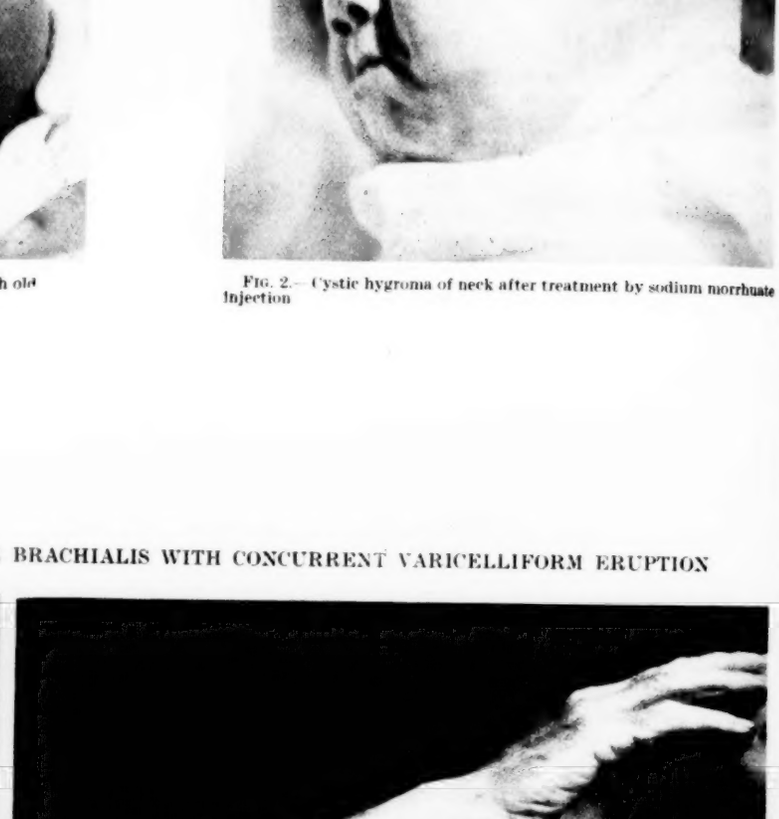


FIG. 2.—Front view.

Further observations on this condition are described by Porges in a recent article[1] which demonstrate that, in order to show the increased motility of the small intestine, it is necessary to give a full meal shortly after the barium meal. Normal subjects, after such treatment, show no evidence of barium in the large intestine two hours later, but in this condition barium is easily demonstrable in the colon afterwards. Attention is drawn to the frequent association of catarrh of the small intestine with cholelithiasis or choleangiopathy, the establishment of the latter being considered by the author to result from the passage of organisms through the damaged mucous membrane, their carriage by the portal blood to the liver and bile and hence infection of the bile passages, decomposition of the bile, and stone formation. The occurrence of apparent radiation of the hyperalgesia of choleangiopathy to the left is considered as due not only to possible involvement of the pancreas but also to catarrh of the small intestine. Porges presents evidence from observed cases to show that in cases of hypochromic anaemia of doubtful origin search should be made for signs of intestinal catarrh. Increased quantities of soaps and fatty acids in the stools is thought to be due to the more rapid passage of the intestinal contents: the soaps act as irritants to the large bowel, and diarrhoea follows. Differential diagnosis must, however, be made from the diarrhoea resulting from fermentation or putrefaction products. Treatment consists of diets poor in cellulose and astringents ; in severe cases meat must be considerably restricted or even dispensed with. If, in spite of this, diarrhoea still continues, fats must be eliminated from the diet ; in such cases the restriction of cellulose foods may no longer be necessary. Calcium carbonate is sometimes useful, but cases occur in which neither this substance nor a cellulose-free diet, nor a combination of the two, is effective. Here, the addition of rye bread and potatoes to the diet leads to the formation of lower fatty acids, soluble calcium salts, and subsequently the production of insoluble calcium soaps.

[1] *Klin. Woch.*, 1933, June 17th, p. 938.

Mr. STEPHEN MORREY

Our readers will be interested to learn that on July 12th Mr. Stephen Morrey of the Editorial Department was presented by his colleagues on the printing and clerical staff of the British Medical Association with a suitably inscribed gold half-hunter watch, upon the occasion of his retirement after fifty-one years in the service of the Association. This is the longest period of service of any member of the staff of the Association —a fact noted by the Council at its meeting in April, when it placed on record its appreciation of Mr. Morrey's work. Mr. Morrey has had the unique experience of having served under three Editors of the *British Medical Journal*—namely, Mr. Ernest Hart, Sir Dawson Williams, and Dr. N. G. Horner—and will be well remembered by many of the now senior members of the profession. He entered the office in February, 1882, and became personal assistant and secretary to the Editor in April, 1892. Under Mr. Ernest Hart he acted as clerk to the old Parliamentary Bills Committee, the forerunner of the Medico-Political Committees of the Association. Unanimous tribute was paid by his fellow workers to his unfailing courtesy and willingness to help them, out of the wealth of his experience, with information as to the work and activities of the *Journal* and the Association. In taking leave of Mr. Morrey at the end of this month we offer him sincere gratitude for all his loyal help in difficult times and our best wishes for the leisure he has so richly earned.

PHARMACY AND POISONS ACT

The Pharmacy and Poisons Act, 1933, received the Royal Assent on June 28th. Section 16 of the Act provides for the setting up of an advisory committee which is to be called the Poisons Board and which is to be constituted in accordance with the provisions of the Second Schedule ; and by Section 17 the Secretary of State for Home Affairs is required, as soon as may be after the passing of the Act, to cause the Poisons Board to prepare and submit to him for his approval a list of the substances which are to be treated as poisons for the purposes of the Act. It is contemplated that Sections 16 and 17 of the Act will be brought into operation by Order in Council by October 1st next. The British Medical Association's representative upon the Poisons Board will be appointed by the Council at its meeting in Dublin on July 26th.

SCHOLARSHIPS FOR SONS OF MEDICAL MEN

We are pleased to make it known that by the generosity of Sir Milsom Rees two scholarships will in future be awarded annually to the sons of medical men. Each scholarship will be of the annual value of £100, to be deducted from the fees, and the scholars will be educated at Port Regis Preparatory School, Broadstairs. At the moment the school contains 50 boys, but further accommodation has now been built, so that there will be ample room for this addition. Boys at entry must be between 8 and 9 years of age, and they may hold the scholarship for some five years. They will be selected at an interview from those boys who have done best in some simple examination conducted in or near their own homes. The first examination will be held in March, 1934, and the scholars will join the school at the commencement of the following summer term. Full particulars may be obtained on application to the headmaster.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been printed ; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Financial Secretary and Business Manager, B.M.A. House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly should intimate this.

By an Order of the Committee of the Privy Council, made after consultation with the Medical Research Council and with the President of the Royal Society, Professor D. P. D. Wilkie, F.R.C.S. (professor of surgery in the University of Edinburgh), is appointed a member of the Medical Research Council in succession to Mr. Wilfred Trotter, F.R.C.S., F.R.S., who retires in rotation on September 30th, after four years' service.

THE BUCKSTON BROWNE SURGICAL RESEARCH FARM

OPENING BY SIR HOLBURT WARING

The Buckston Browne Surgical Research Farm at Downe, Farnborough, Kent, was opened by Sir Holburt Waring, President of the Royal College of Surgeons of England, on July 12th. Among others attending were Lord Moynihan, Lord Lamington, Sir John Bland-Sutton, Sir James Berry, Sir Charles Ballance, Sir George Makins, Sir Charles Sherrington, Sir Cuthbert Wallace, Professor Beattie, Professor Kennaway, Professor Grey Turner, Mr. Rock Carling, Mr. W. McAdam Eccles, Mr. Sampson Handley, Mr. Warren Low, Mr. R. P. Rowlands, Mr. W. G. Spencer, Mr. E. W. Hey Groves, Dr. Sidney Phillips, and Mr. A. E. Webb-Johnson.

PRESIDENT'S ADDRESS

In performing the opening ceremony Sir HOLBURT WARING recounted the generous action of Sir Buckston Browne in providing for the Royal College of Surgeons, at a total cost of £100,000, a surgical research farm, including a residential hostel, available for surgical and biological workers. He reminded the gathering that in 1799 the museum of the Royal College was started by the Government provision for the purchase of John Hunter's anatomical, surgical, and biological specimens, a large number of which had been obtained by Hunter as the results of his experiments at his research farm at Earl's Court. When this nucleus of the museum was taken over by the College it seemed to him that the moral responsibility of providing facilities for the advancement of surgery by research was taken over also, although for many years the examination of students and the building and equipment of the museum had absorbed most of the energy of the Council. It was hoped in this new environment to solve by experimental methods many of the fundamental problems which beset surgery to-day. He proceeded to outline some of the most pressing surgical and biological investigations which would be carried on at the farm. Recent statistics on the mortality of acute intestinal obstruction showed that about 40 per cent. of patients died. On the other hand, it was asserted that the technique of abdominal operations in competent hands had become so perfect that the death rate from surgical intervention was almost negligible. It did not seem fair to blame the death rate on to the practitioner who sent the patients to hospital too late. Why did these patients die? Surely experimental work ought to be able to answer the question. Again, ulcers of the stomach and duodenum were becoming more common. The cause of these ulcers was not as yet satisfactorily explained, nor was it known why only some of them perforated. Much had been heard of "shock" since the war, and it was thought that physiologists had provided the key to its cause and treatment, but modern experimental work had undermined the explanations which were given; hence the problems must again be tackled. Finally, the last strongholds of the body to submit to successful surgical intervention—namely, the cranial and thoracic cavities, with their contents—would provide numerous problems for the immediate future. Apart from these investigations, the institution would provide facilities for students who were undertaking investigations of a purely scientific nature. The investigation of growth phenomena, normal and abnormal, the interrelationship of certain endocrine glands, and some aspects of neurology were among the problems which were already in train and would be dealt with in the laboratories. The resources of the Research Farm were intended to be used by the young surgeons of London and of the provinces, also by biological students who were investigating problems connected with surgery or any of its allied sciences. Two research students, whose emoluments were provided by the Leverhulme Trustees, had recently been appointed by the College, and a research student whose honorarium was provided by the College itself had been reappointed, and these students would work at Downe and in the laboratories in Lincoln's Inn Fields. It was in the close association of the surgeon with the biologist that the great advances of surgery in the future might be expected.

"I have now great pleasure in declaring the Buckston Browne Surgical Research Farm open, in dedicating it to the ideals of John Hunter—we cannot offer a more worthy tribute to his memory—and in wishing the workers who make use of its facilities every success in the elucidation of the surgical and biological problems they undertake to investigate."

THE FARM, ITS ASSOCIATIONS AND WORK

Sir BUCKSTON BROWNE reminded the gathering of the remarkable spot on which they were assembled. Close by was the house in which Darwin lived for forty years, where he wrote the *Origin of Species* and contributed greatly to the emancipation of the human mind. Now the place would speak also of the ideals of John Hunter, one of the great emancipators of the human body. John Hunter was a remarkable man, compact of curiosity, wanting to get to the bottom of everything with which he came into contact. Among his pupils was Edward Jenner. The world quickly forgot its benefactors and their benefactions, and very few realized how enormously Jenner had placed the world in his debt. The speaker added one word with regard to those who opposed all experimentation upon animals. This work of research was intended for the alleviation of animal pain as well as of human pain. What was done for man found a further service in the veterinary colleges and hospitals. It was the hope of the Royal College of Surgeons that every day at the Surgical Research Farm some new step might be taken towards the elucidation of the problems of surgery and biology. "*Nulla dies sine linea.*"

Sir ARTHUR KEITH, in some further remarks, threw a little more light upon the genesis of the Research Farm. About twenty-five years ago, when he was appointed conservator of the College museum, his colleague, Mr. Burne, told him that the colour had gone from John Hunter's specimens, where the growths had been stained with madder, and they had lost their value. Mr. Burne and he lamented then that they had not a place at Earl's Court, as John Hunter had, where the experiments could be repeated and new specimens produced. As a matter of fact, Mr. Burne filled the gap then, because he appealed to a cousin of his who was farming in Norfolk, and the experiments were repeated there. Many instances similar to that one occurred to show the need for a place where experiments could be made, but the College was under the impression at that time that it could wait for Nature to produce the experiments and leave men like himself to interpret them as best they might. At the time of which he was speaking the College did not look upon itself as a body whose duty it was to advance surgery by all possible means. But about 1926 Lord Moynihan became president, and he set aside all opposition, and made a way for research in the College. Very soon it became apparent that the College laboratories, even the new ones, were absolutely inadequate, and it was then that the idea arose of a place in the country. Sir Buckston Browne, hearing of the need, thereupon came forward with the most generous benefaction that had been made to medicine in his time. Sir Buckston Browne had also purchased the neighbouring Down House, the home of Charles Darwin, endowed it, and handed it over to the British Association as a gift to the nation. As to the work which was to be done on the Surgical Research Farm, it was prospectively taking many forms, and, thanks to the President of the College, some of it has already started. He hoped the day would never come when the place would be cut off from the College in Lincoln's Inn Fields, because it was conceived as an appendage or accessory to it, and never as an independent body. Lord Moynihan and others present would remember that as young ambitious men their best moments were those they spent with other men, discussing each other's problems and exciting each other's interest. It was this which led the College to conceive not only laboratories but something in the nature of a club attached to them, and the idea of the Research Farm included not only

a surgical laboratory but a place where men who wanted to advance surgery might meet in social circumstances.

After the speeches, which had taken place in the common room of the hostel, those present inspected the residential accommodation in the same building, the laboratories and accessory rooms which are a separate structure, and the thirteen acres of grounds. Opportunity was also taken to visit Down House.

By invitation of Sir Buckston Browne and of the British Association the Harveian Society held its summer meeting on July 15th at Down House. Sir Buckston Browne received members and guests in the drawing-room, where, he said, Charles Darwin used to recline on a couch while Mrs. Darwin played the piano to him. He did not intend to give a formal address on Darwin, but hoped that the visitors would see for themselves the various items of interest in the house where Darwin lived for forty years. During tea Lieut.-Colonel Gowlland, president of the Harveian Society, presented on its behalf to Sir Buckston Browne an oak garden-seat. After tea Sir Arthur Keith showed some of the guests round the laboratories of the Research Farm, while Sir Buckston showed the others the residential hostel. In spite of the truculent behaviour of the weather everyone thoroughly enjoyed the visit.

BRITISH POST-GRADUATE MEDICAL SCHOOL

FOUNDATION STONE LAID BY CHANCELLOR OF EXCHEQUER

The foundation stone of the British Post-Graduate Medical School, adjacent to the London County Council hospital in Ducane Road, Hammersmith, was laid on July 17th by Mr. Neville Chamberlain, Chancellor of the Exchequer. His brother, Sir Austen Chamberlain, presided over the ceremony, and with him were the Earl of Athlone, Chancellor of the University of London, Mr. E. M. Dence, chairman of the London County Council, and the following members of the governing body:

Sir Robert Bolam, Lord Dawson of Penn, P.R.C.P., Lieut.-Colonel H. R. Dutton, Mr. H. L. Eason, Dr. T. Watts Eden, Professor G. E. Gask, Mr. F. C. Goodenough, Dr. Florence Barrie Lambert (chairman of the Central Public Health Committee), Dr. Louisa Martindale, Sir Frederick Menzies, Lord Moynihan, Sir George Newman, Mr. L. Silkin, Dr. A. T. Stanton, and Dr. Cecil B. Wall.

Among the general company were Lord Riddell, Sir Holburt Waring, P.R.C.S., Sir Henry Brackenbury, Sir John Broadbent, Sir William Willcox, and Mr. Warren Low. The now lengthy history of this project is told in detail in the Chancellor's speech. The proposed building will occupy three floors. On the ground floor there will be the dean's office, a clinical theatre, a chemistry laboratory, a post-mortem room, and a histological laboratory; on the first floor a lecture theatre, several laboratories, and museum and library; and on the second floor provision for bacteriology, microscopy, and medium preparation, and a large animal section.

Sir AUSTEN CHAMBERLAIN, in inviting the Chancellor of the Exchequer to lay the foundation stone, said that the work which was to be advanced one stage further that day might be described in a French phrase as "a work of long breath." It was twelve years since the then Minister of Health appointed a committee, over which the Earl of Athlone presided, to advise upon the steps necessary to secure proper provision for post-graduate medical education in London. Many minds had co-operated in the development of the plans which Lord Athlone's committee first placed before the authorities. That committee pointed to the necessity in the University of London of a great post-graduate school of preventive medicine. That school, the London School of Hygiene and Tropical Medicine, was already in existence in Bloomsbury. But the committee also indicated as an equal necessity a school of post-graduate medical teaching, study, and research. A great clinical school, however, was of no use without a great hospital attached to it. After many years of study and the examination of many alternative proposals, it was at last decided, thanks to the hearty co-operation of the London County Council, that the new school should be attached to their hospital in Hammersmith, which already possessed 400 beds, and would no doubt in due course be further expanded, and, moreover, which stood on a site affording sufficient space for the erection of the laboratories and other appurtenances of the school. "What we hope to accomplish by this school," Sir Austen continued, "I will leave to others to tell. I will only say that it is one more step forward in the gradual raising of the University of London to the position which the University of the capital city ought to occupy. In endeavouring to realize that aim we count confidently on the hearty co-operation of the medical profession in all its branches, on the assistance and guidance of the University itself, and on the support of H.M. Government, represented here to-day by the Chancellor of the Exchequer and the Minister of Health." He concluded with an expression of regret that Lord Chelmsford, the first chairman of the Board of Management, to whose tact and patience in overcoming initial difficulties so much was due, had not lived to see that occasion.

The EARL OF ATHLONE added a few words. He said that when he was appointed chairman of the Post-Graduate Medical Committee of 1921 he was told by his friends that it would be a waste of time, and that the recommendations of the committee would share the fate of those of most departmental committees, and find a home of rest in the nearest pigeon-hole. It came, therefore, as a great surprise to him when he heard from Sir George Newman, in 1923 or 1924, that one of the recommendations—namely, the creation of the London School of Hygiene and Tropical Medicine—was to be realized. A splendid building now existed in Bloomsbury in which this portion of the programme was carried out. To have secured the interest of such a busy man as the Chancellor of the Exchequer was of good augury for the future. A school of this kind could not be built or exist entirely without Treasury grants, and it was important that this great scheme should not be allowed to suffer in any way through lack of funds. As Chancellor of the University of London he could vouch for the happiness of the relations existing between the London County Council and the University, and he was convinced that, with the continued co-operation and generosity of that great body, they would one day see the fulfilment of their dreams.

Mr. E. M. DENCE said that the London County Council fully realized the national and imperial value of a post-graduate medical school, and had gladly agreed to co-operate with the Minister of Health for this purpose. Unfortunately, almost from the very outset, both the Government authorities and the Council were faced with serious financial difficulty resulting from the economic crisis, and on two separate occasions it became necessary to postpone for the time approval of a definite scheme for the provision of the post-graduate school. He thought it said much for the tenacity of purpose of all those interested in the development of the scheme that, undismayed by a succession of crises, they ultimately overcame all difficulties, and at last were able to submit modified plans which of purpose were designed to meet the new financial conditions, and thus bring their labours to a successful issue. All through those most difficult times they were extremely fortunate in having the sympathetic and invaluable support of the Chancellor of the Exchequer. He reminded the gathering that the London County Council had the largest medical staff of any public body—a staff, whole-time and part-time, numbering 630—and that it was the authority responsible for the supervision of the health of London. In those respects it was intimately concerned in an adequate supply of well-qualified medical practitioners, and therefore its interest in all schemes for the efficiency both of undergraduate and post-

graduate medical education needed no argument. In conclusion, he said that it was the general opinion among his colleagues on the Council that the location of this post-graduate medical school in London was of great importance, not only to the public health of the metropolis, but also in attracting post-graduate medical students from all over the world.

THE CHANCELLOR'S ADDRESS

Mr. NEVILLE CHAMBERLAIN, before laying the stone, said that to many of those who were witnessing that ceremony the spectacle must seem almost too good to be true. The project of a post-graduate school had long formed part of the dreams of those concerned in public health, and its final crystallization into a practical working scheme had only resulted from a long and persistent effort on the part of many willing helpers. They had suffered many checks, disappointments, and delays. They had seen their child repeatedly the victim of that shocking incident—a change of Government. They had watched over it while it suffered from that dangerous and highly infectious complaint known as an economy campaign. But they had brought it safely through all its infantile troubles, and he thought that only a profound conviction of the importance of this venture could have brought so many men of different occupations and schools of thought together to work out, in the face of many difficulties, and over so long a period, a practicable scheme.

Like most good things, the school had been the product of a long process of evolution. In the early 'nineties Sir Jonathan Hutchinson started afternoon demonstrations and lectures at his clinical museum, and arrangements were made for instruction in various specialties. Out of that was formed the Medical Graduates' College; but although the organization was very valuable, it had one extremely serious defect, it had no hospital connected with it, and so the students lacked the very thing which was perhaps the greatest need of the general practitioner seeking post-graduate instruction—that is, daily attendance in the in-patient and out-patient departments of a hospital.

The next stage was the foundation, in 1918, of the Fellowship of Medicine and the Post-Graduate Association, with which the name of Sir William Osler would always be associated. The function of the Fellowship of Medicine was to co-ordinate and stimulate the existing facilities for post-graduate instruction. It endeavoured to persuade the existing London medical schools to give further post-graduate instruction without interfering with the needs of the undergraduates, and it encouraged the hospitals generally to establish or extend post-graduate teaching. Thanks to that organization, which was still in existence and doing most valuable work, a great number of medical practitioners on demobilization after the war were able to obtain a refresher course before they restarted their private practice.

This brought him to the origin of the present movement in 1921, when Dr. Addison set up a committee which, having taken the name of its chairman, was now famous as the Athlone Committee. That committee showed great statesmanship and imagination. It dealt with the subject under two heads: preventive medicine and clinical medicine. It came to the conclusion that though there were considerable facilities in both directions in London, these were far too much diffused, and lacked that concentration whereby alone the best use could be made of them. The committee therefore made the two recommendations which formed part of the one great plan, the one the establishment of a school for the teaching of preventive medicine, and the other the scheme for a post-graduate medical school, associated with some large and well-equipped hospital. The first part of the scheme, as already stated, had come into being in the shape of the London School of Hygiene and Tropical Medicine. The other part had to wait for more propitious times. His own entrance upon the scene took place in 1925, when, building on the basis of the Athlone Committee, he established a very strong committee over which he himself presided to try and work out a practical scheme. The committee included the Presidents of the Royal Colleges and representatives of the great teaching and other hospitals in London, of the British Medical Association, and of the Fellowship of Medicine. The committee illustrated the fact that among doctors, as indeed in the world of conferences, while there might be perfect unanimity as to the object to be achieved, this was often combined with very considerable differences as to the means of achievement. In the case of the doctors, however, an agreement on all points was eventually reached, but it was a protracted process and took more than a few months. First of all the possibility was examined of building a new hospital and school, fashioned according to their desires, free from all the hampering traditions which must necessarily attach to any hospital with a long history behind it. That idea had to be given up because it was realized that although it might be possible once again by the munificence of some private or public body to find the capital sum required, the annual cost of maintenance of such a hospital might well amount to £75,000, and this put the practicability of that scheme out of court. The conversion of one of the teaching hospitals in London was then considered, but after the most exhaustive examination it was found that none of them was prepared to sacrifice the teaching of undergraduates in order to take up the teaching of post-graduates, and the committee agreed that it was impossible to combine in one institution those two very different things.

It took two years to complete the examination of the various alternatives open, and it was not until 1927 that the committee began to enter into formal negotiations with the West London Hospital. That hospital presented great advantages, because there was already connected with it the West London Post-Graduate College. After very protracted negotiations, however, it became apparent that even there there were very formidable difficulties still to be overcome, and in particular the site of the hospital was extremely restricted, and hardly offered sufficient possibilities of expansion to meet what the committee had in mind. Nevertheless, until 1929 that scheme seemed to hold the field. Then the situation was entirely changed by the passing of the Local Government Act, which handed over to the jurisdiction of the London County Council nearly thirty hospitals, containing some 1,700 beds. That obviously introduced a new factor of which account had to be taken.

Not long after that Act there took place a change of Government, and he confessed that he himself left office with some anxiety as to the fate of the scheme. Fortunately, however, the scheme was not the subject of party controversy, and his successor, Mr. Arthur Greenwood, took up the scheme where he had left it, and the committee under his chairmanship entered into negotiations with the London County Council, which before long resulted in certain recommendations to the new Government. It was recommended that the school should be established in association with the Hammersmith Hospital, which already possessed the 400 beds considered necessary for the initiation of the scheme, and which was on a suitable site, and in other respects was extremely favourable for their plans. In April, 1930, the Labour Government announced that it had accepted the plans of the committee, that a maximum of £250,000 would be found by the Government for the building and equipment, and that the Government would further provide, through the University of London, a maintenance grant for the carrying on of the school when it was established. The recommendations included plans for residential accommodation, partly in the hospital and partly elsewhere, and the rest of the story was soon told.

An Organization Committee was formed to consider plans for the construction of the school, a Royal Charter was granted, and at a later stage "London House," a hostel for students from the Dominions, was established to offer the accommodation desired by the committee. One more crisis still remained to be surmounted, for in 1931 the financial affairs of the nation were in such a condition that the then Chancellor of the Exchequer had to make drastic plans for cutting down expenditure in

every direction. When the first National Government was formed he (Mr. Chamberlain) became again Minister of Health. He recognized at that time that it could not be expected that the promise of £250,000 could mature, but he told the Chancellor of the Exchequer—Mr. Snowden, as he then was—that if he would give him £100,000 he would withdraw all claim to the balance for the present. Mr. Snowden, with a promptitude as gratifying as it was unexpected, at once acceded to his request, and when the proposition for still further economies took place in the second National Government the speaker was himself Chancellor of the Exchequer.

The long-cherished project was at last beginning to take material shape. The buildings would comprise lecture theatres, laboratories, and the necessary offices for the dean and professors. Extensions and improvements to the hospital were to be undertaken by the London County Council at a cost of £100,000, and would include two new blocks for casualties, receiving, and out-patient departments, a new ward, three new operating theatres, a central department for the sterilization of dressings, and new *x*-ray, light, and massage departments. He understood that the equipment of the *x*-ray department in particular was going to be a feature of special importance and interest.

"Here, in London," the Chancellor continued, "will stand these two great schools, the London School of Hygiene and Tropical Medicine and the British Post-Graduate Medical School, which are going to make London the centre of the most progressive medical teaching in the world. As a former Minister of Health I look upon this school as part of a great national institution fraught with the utmost importance to the health of our people. This very day there is being celebrated the twenty-first anniversary of the national health insurance scheme—a scheme which has long since established its value, and has come to be regarded as one of the great pillars of our national health system. Yet the value of that scheme must always be limited by the skill of the general practitioners who work it. Too often, especially in the remoter districts, many of them since they walked the hospitals have grown a little rusty. It is not their fault, busy as they are with their daily routine, with a vast number of patients to look after, that they have neither time nor opportunity to seek out chances of making themselves acquainted with that march of knowledge which never ceases in the great centres of medical thought and practice. But a new day will dawn for them when this school comes into being. The doors of knowledge are going to be thrown wide, and a time will surely come when no general practitioner, man or woman, will allow many years to pass without refreshing and rejuvenating their minds by attendance at this school here in London.

"There is another aspect of these buildings which must be of special interest to any Minister of Health. I realized when I was handing over the Poor Law hospitals to the local authorities that I was inaugurating changes which might have far-reaching and unforeseen effects in the future. In particular this change involved a new departure in the relations between local authorities and the medical profession, and it was important in the public interest that those relations should be smooth and harmonious. I never thought at that time of what might take place here to-day, but now I reflect that in this new scheme of ours in which the Government, the University, the London County Council, and the medical profession are all partners we are going to have an association between the greatest of our local authorities and an organization which is of the very first importance to the whole medical profession from one end to the other.

"I have just one other thing to say, lest we take too exclusively a national view of this great institution. Nothing made a deeper impression on my mind when I was studying this scheme at the Ministry of Health, nothing encouraged me more earnestly to pursue it, than the representations that were made to me by visitors from over-seas, from the Dominions, even from America, and from every part of the world, as to the need for an institution in London which would give them the opportunity for post-graduate instruction. Over and over again they deplored to me the hard necessity which forced them to go to the Continent, to listen to lectures in a language which they understood only imperfectly, and to get instruction which they would far rather have secured in London itself. It was to London they looked for the latest and best in medical theory and practice, and it was to London rather than any other place in the world they desired to come for enlightenment. They begged me to use every effort and influence I could command in order to set up in London the accommodation for instruction which they felt they required, and which, as they said, would be for the benefit not only of this country but for the Empire and for the whole of mankind.

"It is with infinite satisfaction that I can say this afternoon that those representations have been heard, and that the implied reproach is being removed from our midst. I would say to this company here, many of whom have made so large a contribution to this happy result, that some of us may not live to see the full development of our ideas, but we may well be proud of having played a part in begetting this great project for which assuredly future generations of men and women will have cause to bless the authors." (Loud applause.)

The Bishop of Kensington offered prayers, after which Mr. Chamberlain, with the assistance of the architect (Mr. Topham Forrest) laid the stone. The Minister of Health (Sir E. Hilton Young) thanked Mr. Chamberlain, and assured all those who had the welfare of the institution at heart of the profound and unfailing sympathy and interest of the Department over which he presided.

CARDIFF TUBERCULOSIS CONFERENCE

The nineteenth annual conference of the National Association for the Prevention of Tuberculosis met at Cardiff on July 13th to 15th, under the presidency of Sir ROBERT PHILIP, chairman of the council. This meeting having been organized through the Welsh National Memorial Association for Tuberculosis, the occasion was taken to review its history and work, and to visit its institutions.

Lord DAVIES OF LLANDINAM, Professor LYLE CUMMINS, and Dr. POWELL, in their opening addresses, sketched in outline the activities of the Welsh Association, which differs materially in organization from the English counterpart. Geographical rather than county administrative areas form the basis of the scheme, and the whole of Wales is covered in a network of dispensaries and hospitals, with a staff of fifty-two tuberculosis physicians. Students for a diploma in tuberculous disease in the University of Wales are appointed as part-time assistants, and give practical aid in carrying on the work.

The primary topic for discussion was the part played in the production of tuberculosis by (1) infection, (2) environmental conditions, and these were discussed in an interesting and varied manner during the two days of the proceedings.

Sir ROBERT PHILIP gave a brilliant summary of the problem. It was necessary, he said, to exclude so far as possible all likely sources of infection. The family doctor's primary function in tuberculosis was to discover when infection had taken place. Realizing that tuberculous infection was almost universally distributed, the country had developed a national tuberculosis scheme which must work unceasingly to prevent infection and control environment.

ENVIRONMENTAL FACTORS

Dr. RALPH PICKEN (medical officer of health, Cardiff) spoke of poverty, which reduced human resistance, as more important than housing, which acted mainly by affecting the opportunities for environment. In Cardiff there were very favourable hygienic conditions and practically no slum areas, yet the mortality from tuberculosis was high. Probably rural immigration and lateness and rapidity of the city's growth accounted for this. A further warning against the indiscriminate housing of families living in poverty was given by Dr. M'GONIGLE (medical officer of health, Stockton-on-Tees), who had found that increased rents of new houses diminished expenditure on food. The theme of overcrowding and poverty was further developed by Dr. BRADBURY, whose

report on tuberculosis and Tyneside has been discussed in these columns. The special susceptibility of the Welsh to tuberculosis was examined by Dr. H. D. CHALKE (Lancashire County Council) and Mr. J. E. TOMLEY (Montgomeryshire Insurance Committee). In certain areas on the western seaboard the disease shows a high death rate, probably due to poor dietary, damp housing, and with stone-working as a contributory cause. Dr. T. W. WADE (medical officer, Welsh Board of Health) contrasted the mortality from tuberculosis in coal-mining areas, which is low, with that among stone-workers, which is high.

Dr. NOEL BARDSWELL (London County Council) described the value of the controlled environmental conditions found at Papworth and Preston Hall tuberculosis settlements. In the former village 80 per cent. of the children gave a positive Moro test, yet none had shown evidence of the disease. In Preston Hall conditions were the same. These villages were a practical demonstration of the value of environment, and yet of themselves they could accommodate only a small portion of the vast number of cases of tuberculosis. They demonstrated all that supervision and satisfactory care work could accomplish. Speaking of the lives of young women between 16 and 25, Dr. Bardswell thought that long hours and late hours of work were the biggest fault in environment.

Dr. R. J. PETERS (Glasgow), on the subject of housing, said that both the incidence and the fatality of tuberculosis were much heavier in small houses. The specific influence of overcrowding is much less evident than expected, and improved housing was not the only factor. Practical application of the newer studies in epidemiology was still necessary, especially in view of the so-called sporadic cases.

BOVINE INFECTION

The question of bovine infection was extensively considered by Dr. W. G. SAVAGE (county medical officer, Somerset), who remarked that the disease was commoner in older cows. Aphysiological conditions, faulty feeding, poor environment, and sources of infection in cowsheds were the principal causes. The agricultural interests would have to either improve these conditions or consent to pasteurization. A comparison of dosage between the alimentary canal and tonsils was made. Dr. W. T. MUNRO (Glenlomond Sanatorium) discussed the significance of various factors which lowered resistance. He believed that the increased mortality in the young adult was not related to age, but resulted from environmental factors. Dr. NATHAN RAW (London) raised the possibility of the mutation of the tubercle bacillus from the bovine to the human type after long residence in the human body. He advocated pasteurization. Dr. W. T. TYTLER (Cardiff) gave particulars of bovine infection in Wales, which in 500 cultures examined was only 1.7 per cent. Two-thirds of the specimens he examined were taken from general surgical lesions, in which the amount of bovine infection may be expected to be high.

Dr. MIDGLEY TURNER (Sheffield) regarded anatomical conditions as the explanation of the comparative immunity of childhood from serious tuberculosis. The lymphatic system of defence is then at its zenith, and metastasis in the parenchyma of the lung is rather difficult. At puberty, when the lymphatic system is less retentive, the susceptibility of the lung tissue becomes marked. The importance of childhood infection was also stressed by Dr. MELVILLE DUNLOP (Edinburgh).

Dr. L. S. T. BURRELL (London) discussed the two theories regarding the onset of adult pulmonary disease. Some claimed that cases of old infection were reactivated by depressed environmental conditions. A considerable number were due to reinfection. Exposure to mass infection was always dangerous at any age. The difference between the adult and infantile types of tuberculosis were largely a matter of the rapidity of spread. In civilized communities children were very resistant to clinical tuberculosis.

Pathological demonstrations were given in the Cardiff School of Medicine by Professor Lyle Cummins and Dr. Tytler. Parties of the delegates visited various of the Welsh institutions for tuberculosis.

England and Wales

Red Cross and St. John

The thirteenth report of the Joint Council of the Order of St. John of Jerusalem and the British Red Cross Society covers the twelve months ending December 31st, 1932, and includes an account of the work of the various departments. The number of cases helped by the Auxiliary Hospitals for Officers Department was 261, of which seventy-five were new cases; the disability concerned was tuberculosis, and 18,321 officer patients have now been assisted since the beginning of the war. Although a decrease has occurred in the number of new cases, there has recently been a steady increase in the number of applications from former patients, averaging at least thirty each quarter. It is pointed out in the report that these patients are in advanced stages of the disease owing to long-continued ill-health, to the failure to obtain or retain employment, and in many cases to insufficient nourishment. No new patients were sent abroad for treatment, and only a very few of the old ones. The second number of the *Hospitals Year Book* was published in June. It has now been decided to publish the statistical portion annually, and the whole book in alternate years only. The Comforts, Ward Industries, and Stores Committee made 283 grants in response to applications from thirty-five Ministry of Pensions hospitals and other institutions. Training in various handicrafts was promoted, grants for ward industries being allocated to ten hospitals, five Ministry of Pensions institutions, and five other similar institutions. More than 9,700 ex-service pensioner patients in hospitals were provided with motor drives, or conveyed to entertainments, by the Drives and Entertainments Fund, which is incorporated in the Comforts Committee. Conferences of London and county representatives were held in April and June to review all aspects of emergency work. Since the inception of this work twelve years ago £1,129,000 has been applied in various forms of constructive help on behalf of the disabled ex-service community. During the same period £133,455 has been voluntarily refunded by men and widows thus assisted—a sum which has extended the duration of the fund by more than two years on the present basis of expenditure. The number of applications increased in 1932 to 21,900, of which 13,250 cases were assisted at a total cost of over £54,500. Help was obtained for a considerable portion of the remainder from other charitable sources. The number of home ambulance stations in the country, including affiliated cars, is 317. During the year under review the ambulances carried 117,153 patients. The task of organizing and carrying first-aid to the injured on the roads is also undertaken by the two organizations jointly.

Royal Masonic Hospital opened by the King

The new Freemasons' Hospital at Ravenscourt Park, Hammersmith (described in our issue of May 13th, p. 840), was opened by the King on July 12th, when His Majesty acceded to the request of the Duke of Connaught, as president of the hospital and the head of English Freemasons, that the institution should in future be known as the Royal Masonic Hospital. The King and Queen were received by the Duke of Connaught, Lord Wakefield, chairman of the hospital board, and Lord Marshall, honorary treasurer. In an address on behalf of the United Grand Lodge of England and of the many thousands of subscribers, the Duke of Connaught said that of the tenets of the Order none stood out more clearly than the duty of relieving distress and suffering. No pains had been spared to make the hospital complete in every particular.

It took the place of a smaller building in Fulham Road, which had been found to be inadequate to the calls on its services, and it was designed more fully to meet the needs of brethren of moderate means. The King, in reply, made a filial reference to the warm support which his father, who for many years presided over the Order, had always given to measures directed to the relief of suffering and distress, especially his work in connexion with King Edward's Hospital Fund, in which, the King said, he also took great interest. The new building, so admirably situated and planned to give patients the benefit of sunshine and fresh air, was a worthy realization of their hopes, and could not fail to bring comfort and help to Freemasons and their families. After the King had opened the door of the main building prayers were offered by the Bishop of Guildford, and the Archbishop of Canterbury gave the patriarchal blessing. Several presentations were then made, and the King and Queen visited the various parts of the building, paying particular attention to the operating theatres, with their modern equipment, the children's wards, with their cheerful decoration, and the kitchens on the top floor, with their provisions for special dietaries. The hospital has cost £335,000 to build and equip, and it contains from 180 to 200 beds in small wards of not more than four beds each. In situation and design it is altogether one of the most pleasing of modern hospitals.

Health in the Factory

A small party of visitors interested in health and welfare services in industry were received at Bournville last week by Messrs. Cadbury Brothers. So much is known of the healthy natural surroundings of the Bournville works that it is not necessary to describe them. The delightfully open country in which the estate is situated has not been heedlessly spoiled by having a busy industrial concern set in its midst. Everything possible seems to have been done so to arrange the immediate surroundings of the great factory as to relieve the strain on the workers of rapid manipulation of machinery and the necessary monotony of much of the work. There are about 8,000 workers at Bournville, one-half being girls and women. Apart from the general provisions for recreation and refreshment, there exists a very complete organization for the medical and dental care of the workers. Dr. Williamson is at the head of the medical department, and attached to the surgery is a staff of three nurses, one or more of whom are qualified masseuses. A fully equipped surgery, with waiting rooms and dispensary, is open during working hours of the factory, there is an up-to-date installation for electrical treatment and massage, and a works ambulance division attends to slight cuts and bruises. All mishaps, however trifling, have to be reported immediately, serious cases being sent to the surgery. The relations of the medical department with the worker begin with his or her first appearance at the lodge gate as an applicant for employment. When a boy or girl applicant is under-developed the doctor may suggest reapplication after a stated period, and make recommendations as to diet and treatment in the interval. If he recommends employment his certificate is qualified with suggestions as to the kind of work which would be suitable, and he may indicate special measures to be taken, such as a course in the remedial gymnasium, with periodical re-examination. Physical exercises form part of the four-year curriculum of the firm's day continuation school through which all junior employees pass. The firm maintains a convalescent home for girls at Bromyard and one for men at Harlech; these homes are used not only for recovery from illness, but also to give a change of air and rest to those threatened with breakdown. The following striking vital statistics for the Bournville estate, being the average for the seven years ending 1931, were furnished to the visitors:

	Death rate per 1,000	Infant mortality per 1,000 live births
Bournville	6.5	56
Birmingham	11.6	72
England and Wales...	12.1	69

Another large and busy branch of the health service is the dental department, with a staff of three qualified dental surgeons. All "compulsory" treatment is free, and any employee may consult the dentists during the day. This is but the barest outline of the scope of the health and welfare services. A complete account of the auxiliary activities, such as the short break in the morning's work for refreshment, the musical and other diversions in the dinner hour, and the scrupulously careful provision of midday meals, would suggest that little if anything has been omitted which could possibly have been introduced within the necessary limits of factory life. Messrs. Cadbury years ago, in adopting shorter hours of labour, recognized the fact of the physical limit of the worker and his or her need of adequate leisure for recreation and self-development, and the firm's experience has shown that output has been increased by successive reductions in working hours. The grounds, up to within a few yards of the necessarily plain buildings of a vast industrial enterprise, are made beautiful with greenery and flowers, smooth lawns, and a recreation ground surrounded by trees, with pleasant balconies where those workers who prefer it may take their meals in the open air.

India

Wadia Maternity Hospital

An indication of the improvement in the maternity treatment of women in India is afforded by the report for 1932 of the board of management of the Nowrosjee Wadia Maternity Hospital in Parel, Bombay. This magnificent institution, which claims to be the largest maternity hospital in India, was opened in 1926 by Sir Leslie Wilson, the then Governor of Bombay. The total number of admissions during 1932 was 5,790, and of confinements 4,231. These figures show only a slight decline on those for the previous year, which is remarkable when it is remembered that rioting in Bombay seriously interfered with normal conditions for a period of about three months, causing necessarily a sharp fall in the number of patients dealt with. This was nearly compensated by increases in the other months of the year. There were sixty-seven maternal deaths, fifty-eight of these patients having been admitted as emergency cases. Seventeen of these are classified as due to anaemia—a complicating condition in India to which previous attention has been drawn in these columns, and ten deaths were due to pneumonia. There is a steady and gratifying extension of the ante-natal work of the hospital, another indication of the way in which the difficult local conditions failed to depress the popularity deservedly won in previous years. Post-graduate instruction is now available. Special interest attaches to the education of medical students. In the year under review forty-three final-year students from the Seth Gordhandas Sunderdas Medical College conducted 867 cases of labour, and fifty-seven final-year students from the Grant Medical College conducted 491 cases. In addition to this 108 cases were in the charge of eighteen students from the Hyderabad Medical School. It will be recalled that in 1922 Sir Norman Walker visited India

to inquire whether the facilities for the practical study of midwifery were such as to warrant the General Medical Council in guaranteeing that the course of study and the examination were sufficient to ensure its efficient practice. During his subsequent visit, five years later, at the public dinner given him by the medical practitioners of Bombay, Sir Norman testified to the great advance that had been made in the interim, and stated that there was not a medical school in the world which would not envy the Wadia Maternity Hospital. In close co-operation with the donor, Sir Ness Wadia, who is chairman of the board of management, the honorary principal medical officer, Dr. M. V. Mehta, has designed and equipped, and now conducts, an institution which is well in the first rank, both as regards its contribution to maternity welfare in India and its services to medical education. The opportunities for study of this particular branch of medicine have now been enormously enlarged, and an incentive has been given to similar progress elsewhere in India. The Wadia Hospital is managed by a mixed board of governors, but it is entirely staffed by Indian medical practitioners.

Haffkine Institute, Bombay

The Haffkine Institute was the centre for the manufacture of plague vaccine for the whole of India last year, and functioned as the bacteriological laboratory for the Bombay Presidency. It acted, moreover, as the centre for manufacture of antirabic vaccine for the Presidency and adjoining areas, and as the treatment centre for the city of Bombay. Research work on plague and other subjects was continued as in former years, largely with the assistance of the Indian Research Fund Association. The number of cases of dog-bite receiving prophylactic treatment continues to increase year by year. The introduction of the use of the Paris strain of fixed virus and graded courses of treatment according to the assessment of risk proved most satisfactory. One case of paralysis occurred, but ended in complete recovery. The demands for the supply of anti-plague vaccine continues, and an increased immunizing potency has been obtained by improved methods of preparation. Purer strains of *B. pestis* have been secured, and the value of a copper sulphate medium for this organism has been demonstrated. A systematic investigation of the immunity of rats to plague in areas in which the disease has appeared in epidemic and epizoötic form is in progress. The properties of scorpion venom have been carefully studied. The toxicity of the venom of various species was determined in relation to body weight, and the conclusion was reached that a scorpion sting could in no case be fatal to a human being. Various traditional Indian plant remedies were tested and found to be valueless.

Kashmir Hospital

In his annual report on the Kashmir Medical Mission of the Church Missionary Society, Dr. E. F. Neve calls attention to the importance of the work in the surrounding country for which the central hospital is responsible. It has to send out relief expeditions to sick persons in distant parts of the valley, or even to remote districts on the further sides of lofty passes. The Government dispensaries are wisely placed in villages, but can, nevertheless, only deal with a small proportion of those in need of help. The arrival of a relief expedition in a remote village is followed by a rush to it of crowds of men, women, and children. About one in every four has some eye disease, mainly ophthalmia, inturned eyelashes, or granular lids. Skin diseases are common: nearly one in every ten patients has eczema or scabies. Parasitic diseases, especially those caused by worms, are also found in about 10 per cent. of the cases. One-fifth are suffering from serious digestive troubles due to lack of variety in food and a great excess of starch. Rheumatism is common, and tuberculosis is now beginning to appear in the village population. There was an unusually large number of in-patients in the Kashmir Hospital during the summer months of 1932, and the total attendances of out-patients (including those seen in the district) rose by nearly 6,000 to over 50,000. The increase in the in-patient figures was mainly brought about by surgical cases, and 4,327 major and minor operations were performed. On the medical side there were a large number of cases of generalized oedema, often with ascites, and occurring in patients of all ages. Some of these are due to hepatic cirrhosis, cardiac failure, or nephritis, but others seem to have no lesion of the liver, heart, or kidney, and the suggestion is proffered that some deficiency disease, such as beri-beri, may be concerned. So far osteomalacia is the only one of these diseases which has been studied in any detail in Kashmir. Indigenous malaria is still absent from the valley; all the cases treated were brought in from the outside. Small-pox was epidemic during the last months of 1932, and a large number of vaccinations were performed. The Kashmiris are aware of the preventive value of vaccination, and realize that even though a certain number of vaccinated persons caught the disease their attacks were milder than in the unvaccinated.

Scotland

Edinburgh Dental School

At the annual summer meeting and prize-giving of the Edinburgh Dental Hospital and School, on July 10th, the dean, Dr. William Guy, whose retirement was announced, was presented, on behalf of the students, with a silver rose bowl. In making the presentation, Mr. L. B. Corner said that Dr. Guy had moulded the careers of many hundreds of men, and the careers of thousands more would be built upon the foundations he had laid. The city of Edinburgh had benefited by his endeavours, for he had made dental anaesthesia safe and readily accessible, and under him the reputation of the Edinburgh Dental Hospital and School had become not merely national but international. Dr. Guy, in reply, said that this was the thirty-fourth occasion on which he had presided at the annual prize-giving. Some persons might judge of the value and prosperity of the school by the palatial buildings and extravagant equipment it possessed, but he considered that, although these things were desirable, the value of the school depended upon the students who belonged to it. The school's greatest assets were its tone and the prestige which, in consequence of that tone, the school enjoyed. These, he believed, were two precious assets which were possessed in the very highest degree by the Edinburgh Dental Hospital and School. He made up his mind when he first became dean that his primary consideration should be the welfare and advancement of the students, and he believed that in these matters there had been steady progress. He would bequeath to his successor a body of students whose behaviour was more than satisfactory, and who were a credit to the school to which they belonged. Mr. J. M. Graham, who presented the prizes, said that he had always been impressed by the great amount of work a medical student did, but he thought that dental students had to work even harder. He urged them, after they went into practice, to keep up to date and to keep in touch with the literature of their own subject.

Care of the Deaf

At the fifth annual meeting of the Scottish Association for the Deaf, Dr. James Kerr, in presenting the annual report, made a plea that provision, somewhat similar to that now existing for the blind, should be made for deaf people. As there was no registration of deaf people, Dr. Kerr said, the number of such persons in Scotland could not be accurately stated. Inquiries made by the association, however, had established that there were 800 deaf children receiving special education, and there were probably 1,200 deaf children who needed education. In the whole of Scotland there were probably about 5,000 deaf-mutes and 20,000 people who suffered from some degree of deafness. Many of them could not again obtain work if they lost their employment, and it would be meeting a great need if the Blind Persons Act of 1920 could be followed by a Deaf Persons Act.

CORRESPONDENCE

Medical Benevolence

SIR,—The Annual Meeting of the British Medical Association would seem to be an appropriate moment for the honorary officials of the Royal Medical Benevolent Fund to bring its claims to the attention of the profession. The report of the Fund for the year ending December 31st, 1932, has recently been published, and its contents are worthy of perusal by every one of the 5,000 direct subscribers; as to the other 47,000 medical practitioners who do not subscribe, we feel sure that if they read it they would at once become subscribers; then our dream of a subscription income of £25,000 per annum instead of £12,451 might become true.

We have reason to know that many medical men are somewhat confused about the medical charities—perhaps a word here may be allowed to make it clear what we do. The Royal Medical Benevolent Fund exists for the purpose of giving "pecuniary assistance to distressed members of the medical profession, their wives, widows, and children." This is done in the form of annual maintenance grants, and in single grants to assist over temporary difficulties; a limited number of annuities are also provided for those who are aged or disabled. Such assistance is given alike to applicants who may have been either subscribers or non-subscribers.

May we here point out that all the sums given in annuities are provided by the invested funds, whereas the grants, for which a fresh application has to be made each year, are provided by the subscription income. Our ordinary standard grant is up to £26 per annum for dependants of doctors, but in some few instances we have exceeded that. We feel sure that all will agree that a paltry 10s. per week for a widow or daughter is not very much for our grantees, though we can assure you, Sir, that it is a perfect Godsend to some of them, so dire is their poverty; that is why we want a subscription list giving us £25,000 per annum. We can then raise our standard grant to something more than £26.

Our organization works in co-operation with the Medical Charities Committee, Sir Charles Hastings Fund, and Epsom College, and there is complete interchange of information about applicants. Whether a subscriber sends his subscription direct to us or allocates it to us via the British Medical Association is not of much moment, but we hope to enlist the personal interest of all subscribers in the work of the Fund. We have not attempted to describe the class of cases that come before us asking for help, as you are kind enough to publish from time to time notes of cases which have been dealt with by our Case Committee.

Augmenting the work of the Fund mention must be made of the Ladies' Guild, which is an auxiliary of the Fund, dealing mainly with personal service, providing clothing, assisting in education of children, and giving help in sundry other ways to beneficiaries. It obtains its own funds by subscriptions, collections, and entertainments which are organized on its behalf from time to time, and gathered in last year £4,000 for these purposes.

We need only say, in general, that the need for this medical charity is great, that it is never-ending. To prove this, up to the end of June we have given in grants in the first six months of this year 1933, £1,023 more than in the corresponding period of 1932, and against that we have received £614 less in subscriptions than last year. This is a matter which most of us hold is a prime duty of the profession as a whole to deal with. Thus we venture once again to commend it to all the members of the Association, and to all the non-members, whether in this country or abroad.—We are, etc.,

THOMAS BARLOW,
President.
LEWIS G. GLOVER,
Honorary Treasurer.
R. M. HANDFIELD-JONES,
Honorary Secretary.

Royal Medical Benevolent Fund,
11, Chandos Street, W.1,
July 22nd.

Paying Patients in Voluntary Hospitals

SIR,—In your issue for July 8th you allowed me to draw attention to the position developing throughout the country in regard to schemes adopted by voluntary hospitals by means of which they have entered into the business to provide a paying patient department. In that communication I referred to certain proposals of the Pay Beds Committee of King Edward's Hospital Fund, and for brevity's sake did not quote the conclusions relevant to that part of the subject in detail, but gave what I hoped was a fair summary. I gave the same summaries in a communication you published on September 15th, 1928, and no one challenged their correctness. However, in your issue for July 15th, 1933, the honorary secretaries of that Fund quote in detail certain of the conclusions of the Pay Beds Committee, placing them in juxtaposition to my summaries. Unfortunately, in replying to the summary marked (*a*), they quote certain conclusions which are not those which are relevant. Summary (*a*) is as follows:

> Accommodation provided in voluntary hospitals should be placed at the disposal of those of "moderate means" on the same terms and conditions as apply to the "sick poor"; no payment for medical treatment being allowed.

The relevant conclusions are:

> (ii) That the provision of special accommodation on a limited scale for patients of small means, at rates which involve a charge on the general fund, can legitimately be regarded as coming within the present extended function of the voluntary hospital system, provided that it is looked upon as a secondary part of that function, and that the treatment of ordinary patients is maintained as the primary part.
>
> (iv) That no patient in a pay bed should pay any fee to a physician or surgeon, whether a member of the medical staff or not, for treatment received in the hospital, unless the charges which that individual patient pays to the hospital cover the whole cost to the hospital of his current maintenance and of any specific services he receives from the hospital.

With regard to the summaries marked (*b*) and (*c*) the honorary secretaries by quotations would seem to support these. But, Sir, the question is not whether certain summaries made are strictly accurate or not, although

in this instance they appear to be. The real question is whether voluntary hospitals following the present lines of their development of private patient departments are to be allowed unquestioned to secure for themselves and their restricted visiting medical staffs medical practice which up to recently has been considered to be open to the whole medical profession; thus encouraging the present craze for consultation and specialism at a hospital on every conceivable occasion and for every conceivable physical and mental illness. If this policy is developed for the benefit of the whole population, except for the few whose happy financial circumstances still place them apart from the rest of the community, then we shall find here in England what has been brought about in the United States of America—that the family doctor will become so scarce that eventually subsidies will have to be offered to secure a sufficient number.

Of necessity the general medical practitioner should be provided with opportunities for practice in the private patient department, wherein he should be able to co-operate with any specialist whom the patient and he care to call in. If this is not rendered possible then "the ranks of the younger consultants will be steadily thinned," as you state, and the public generally will lose the advantage of that efficient domiciliary medical service which is still at its disposal if it desires to retain it.—I am, etc.,

Hove, July 15th. E. ROWLAND FOTHERGILL.

Penetration of Infra-red Rays

SIR,—It is many years ago since I demonstrated to the Physiological Society that the red rays penetrate well through the cheek of a white man, less well through that of a Japanese, and not at all through that of a Negro. A glow lamp held in the mouth, a mirror, and a dark room suffice to show this. Sonne in 1921 showed, by inserting thermo-electric needles under the skin, that the red and short infra-red rays penetrate, while the long infra-red rays do not penetrate and heat the surface, whence the heat is conducted inwards. Argyle Campbell and I confirmed this observation in 1923. In the *Proceedings of the Physiological Society*, May 14th, 1932, I published a curve which shows the penetration of infra-red rays through the horny layer of the skin; just as the red rays behave so do the short infra-red rays pass through this layer to the extent of about 70 per cent. It is then to be expected that some trace of them should pass through the wrist, as found by Dr. Heald's observer.—I am, etc.,

Logdon, S.W., July 11th. LEONARD HILL.

Persistent Occipito-Posterior Cases

SIR,—Dr. C. L. Somerville's criticism (May 13th, p. 846) of my paper in the *Journal* of February 25th (p. 311) has reached me, and I would like to say a few words in defence of my position.

I agree with him that the drawing given is somewhat misleading, and his own figure (No. 2) more accurately shows what actually takes place. With the head on the perineum it is obvious that the hand and forearm cannot be introduced into the vagina without pushing the head upward. In occipito-posterior positions the head seldom reaches the pelvic floor, but remains at or above the inter-spinous line. In that case, I maintain that the hand can be carried upward far enough to reach the shoulders and turn them forward. In justification of my method I would like to say that I used it many years before the advent of the Kielland forceps. I have taught it to my students, and both they and many of my fellow practitioners will bear witness that they have used it also and with entire success. And here one might add that nothing succeeds like success. The objection that putting the hand into the uterus may lead to infection is quite to the point. However, since the rubber glove came into use that danger has markedly lessened. I can truthfully state that never in my experience has infection followed. (Here I touch wood.) Has not Dr. Somerville introduced his hand into the uterus in doing an internal version or when removing an adherent placenta, and did anything untoward happen?

There is no doubt that the Kielland forceps can be used to correct an occipito-posterior position, and I have often pointed out that fact to my students. But not many physicians here possess these forceps, for, owing to their somewhat freakish construction, they have not found much favour. For the general practitioner I think they are far inferior to the Jellett or Milne Murray type of axis-traction forceps. Having used this manual method for many years with uniformly good results, I can see no reason for adopting a different method, especially one which has always been looked upon with disfavour—that is, forceps rotation. With due respect I present these views and will leave to the profession in general to decide on their merits.—I am, etc.,

Winnipeg, June 24th. O. BJORNSON, M.D.

Use of Quinine in Normal Labour

SIR,—May I point out that the use of quinine in normal labour, as employed in the case reported by Mr. G. C. Dorling of Tientsin in the *Journal* of July 8th (p. 79), is not the method described by Dr. Mitchell of Bath (in the *Journal* of January 25th, 1930), and by myself (in the *Journal* of January 28th, 1928). Mr. Dorling used it to induce labour in an over-time pregnancy, with small pelvic measurements. Our method is a very mild "quininization" by giving not more than 5 grains a day in divided doses, commencing several weeks before the calculated date of parturition. The objects aimed at and, we claim from clinical experience, achieved are: (1) labour shorter and easier; (2) improved uterine tone (with *no* complications of irregular contraction); (3) definite diminution in susceptibility to infection; and (4) improvement of general health and more satisfactory puerperium. In view of the confusion which has obviously arisen some other descriptive term for this method is imperative. It is now seen that the above heading is an incorrect description. I would suggest: "Ante-natal use of quinine as a puerperal prophylactic."

British and American pharmacologists differ notably in their findings on the fundamental point of the action of quinine: "Does it lower temperature in virtue of a diminution of oxygen consumption by the tissues?" Further, in antimalarial practice its use is not, as might be supposed in this country, stabilized. New synthetic drugs, for which high claims as to their superiority over quinine have been and are being made, have been introduced recently. This indicates the truth of the foregoing statement. It is claimed by Dr. Mitchell and myself that its action over an extended period in small doses (5 grains maximum, as against 30 to 40 grains a day) not only differs widely, but that its superiority is clinically quite unmistakable. Hence, on my own account I feel I must disclaim responsibility for advocating its use in large doses and suddenly, and endeavour to dispel the evident confusion between two distinct methods. I hope to deal more fully with the subject at an early date. Meantime the original articles should be consulted.—I am, etc.,

London, W.6, July 12th. W. M. HEWETSON.

Avertin: Disclaimer

SIR,—With reference to the accounts in the Press of the inquest on the woman who died at Guy's Hospital after enucleation of tonsils, I wish to say most clearly that the statement that I introduced avertin into this country is incorrect. The report on the use of this drug for anaesthesia was published by Dr. Joseph Blomfield and myself on behalf of the Anaesthetics Committee of the Medical Research Council, and contained the conclusions of other investigators besides ourselves.

Further, I must correct the impression that I administered the anaesthetic. In fact, I was not even aware that an operation was to be or had been performed on this patient.—I am, etc.,

London, N.W.1, July 15th. FRANCIS E. SHIPWAY.

Allergic Diseases in General Practice

SIR,—Dr. G. W. Bray, in the *Journal* of July 8th (p. 43), states that the use of non-specific agents is "a shot in the dark," and that an extract of feathers, hair, and dust is more likely to meet with success. Among the non-specific agents "Witte's No. 30 peptone is probably the best." Now, I have seen Dr. Bray's practice at Guy's Hospital, and every case was injected with equal parts of Witte's No. 30 peptone and extract of hairs, feathers, etc., and yet he says he uses the inhalant mixture solely. I have used the solution he employs, kindly given me by himself, and I am convinced that the peptone has more to do with the good results in the cases than the solution of inhalants.—I am, etc.,

London, W.1, July 10th. A. G. AULD.

SIR,—There are so many dogmatic statements in Dr. Bray's address that older members of the profession may be pardoned for hesitating to accept them all as "the whole truth." In particular, it would be interesting to know what practical experience Dr. Bray has had of the use of tuberculin in the not uncommon group of cases of asthma in which tuberculo-protein is almost certainly the "causative allergen." I imagine that many physicians of sound judgement and long experience would disagree that tuberculin in these cases is a "waste of time and money."

The problem of the association of nasal abnormalities and asthma is apparently solved at last by Dr. Bray. He says, "It is pitiful to hear of the number of useless operations that many asthmatics have had on their noses." It is also pitiful to find in how many instances the nasal condition has not been dealt with, while the patients have spent, in vain, large sums on various methods of desensitization.

What reply have the nasal surgeons to make to Dr. Bray's theory that "the nasal abnormalities are commonly the result of allergic reactions and rarely the primary cause?—I am, etc.,

Oxford, July 10th. WILLIAM STOBIE.

Monilia Infection of Respiratory Tract

SIR,—I noted with pleasure, in your issue of June 24th (p. 1130), Dr. David Haler's belief "that most people who have had occasion to handle large numbers of sputa will agree as to the high incidence of monilia therein." It is a matter for regret that very many medical men do not realize this. The remark "that such monilia might gain access to bronchi in cases of subnormal health of the mucosa seems beyond question" should be encouraging to those who are interested in moniliasis of the lungs. Lieut.-Colonel P. J. Marett's note in the *Journal* of May 27th has less bearing on the pathogenicity of monilia than several of his previous articles on this subject. The recognition of its pathogenicity in diseases of the skin has rescued many a case from the easy nomenclature of eczema or dermatitis or onychia, and given a diagnosis of monilia infection.

When one considers the virulent and intractable condition that such infection of a mucous membrane may cause, it seems difficult to imagine the persistent presence of monilia in the lung without a chronic inflammatory lesion being developed, either as a primary infection or following on established disease—for example, in symbiosis with tubercle. A "chest clinic" for out-patients was founded in Jersey over two years ago consequent upon Lieut.-Colonel Marett's work. Among the observations made there the following particularly interest me. It was noted that in chronic disease of the lungs, such as tubercle, where monilia is also present, the patient is markedly benefited by treatment of the moniliasis, potassium iodide and the vaccine being given; and that in cases of bronchitis or bronchiectasis in which monilia is the predominating infection and tubercle is absent, a characteristic pink or blood-stained sputum is frequently found—the radiologist finds a picture which he recognizes as "typical" of monilia infection, and the above-mentioned treatment will result in a surprisingly rapid abatement of symptoms.—I am, etc.,

W. STEWART,
Jersey, July 1st. Major R.A.M.C. (ret.).

Arthritis and Allied Conditions

SIR,—The very gloomy prognosis given by the Arthritis Committee in cases of chronic arthritis of uncertain origin has emboldened me to place on record some vague observations which I made during a stay of about eight years in Malaya.

Malaya is a country of small area almost entirely surrounded by sea and situated just north of the equator. The climate is peculiar: there are no seasons. It is always rather hot and damp. The rainfall, I believe, is about 120 inches, fairly evenly distributed through the year. The tropical showers are extremely severe, however: a great volume of water may fall in a few minutes; so this great rainfall does not necessitate dull rainy days. These are exceptional. These climatic conditions appear to exercise a decidedly deterrent influence upon certain streptococci. Rheumatic and scarlet fevers are practically unknown. I never saw a case of either. Puerperal pyrexia is very common, but the acute fulminating type, usually associated with streptococcal infection, is unknown or very rare. Tonsillitis, quinsy, erysipelas, and chronic articular disease are all rare; but lumbago, stiff neck, and all forms of fibrositis are not uncommon. Valvular disease of the heart is much less prevalent there than here.

I have only been able to trace two subjects of chronic articular rheumatism who spent any length of time in Malaya. Both were elderly ladies, and in neither case did the length of stay amount to one year. In both cases articular rheumatism had been a severe handicap for a considerable time before going to Malaya; during their residence there they experienced very marked relief, and this relief has been maintained for over five years since their return to this country. While admitting that these observations are of little or no value, it is hoped that they may induce others, with experience longer than mine, to publish their views. In the meantime I suggest that a stay of several months in a climate similar to that of Malaya may have a very definite ameliorative effect in cases of chronic arthritis of unknown or streptococcal origin, and that this effect may be of a lasting nature.

The fact that varicose veins are (I believe I am correct) practically unknown among the natives of Malaya leads me to suspect that varix is a by-product of chronic streptococcal infection.—I am, etc.,

London, W.9, July 4th. JAMES GOSSIP.

"Nerve Energy"

SIR,—It appears to me, from Professor Fraser-Harris's letter in your issue of June 10th, that he is not sufficiently appreciative of the point that Professor Howell's conception of nerve energy is derived from the muscle-nerve preparation. The nerve cell that he visualizes is one which remains quiescent until excited to activity by an external agent—the stimulus—and until that stimulus arrives it does nothing. Moreover, after each excitation it reverts to quiescence. The possessor of such nerve cells could have within him no urge to do anything; he would require the equivalent of kicking and cuffing to induce him to do anything at all, and then relapse to the inert state again after the kicking and cuffing were done.

On the other hand, nerve cells which are ever in rhythmical activity provide immediately obvious sources of internal urges to do things, with the degree of urge depending on the degree of their activity. The possessor of abundant nerve energy is the one with nerve cells that "beat" vigorously, like those of the respiratory centre in hyperpnoea; the possessor of little nerve energy has nerve cells that beat feebly. Probably in due course we shall find the ductless glands which provide nerve energy through their capacity to augment our nerve cell activities.

This conception of spontaneously active central neurones has not so far been reached by the majority of physiologists, because they have always gone to the excised muscle-nerve preparation for their fundamental ideas. They have consequently presumed that our cerebral nerve cells and central neurones generally are inert and inactive until excited to activity by a stimulus, just as are excised muscle and nerve. This presumption, treated as a fact, is further responsible for the theory that a special structure—the synapse—is responsible for the differences of behaviour found in reflex areas and excised nerve respectively. If, however, this presumption be got rid of, the facts actually demonstrate the existence of a rhythmical structure in reflex areas. The same facts indicate that cerebral nerve cells must also possess an intrinsic and spontaneous rhythmical activity. Such cells are obviously sources of nerve energy.—I am, etc.,

W. BURRIDGE,
Professor of Physiology,
Lucknow University.

King George's Medical College,
Lucknow, July 3rd.

I.M.S. Pensions

SIR,—I regret that, owing to the available space in the correspondence columns of the *Journal* being limited, my remarks are in the form of notes. I.M.S. officers are recruited by the Secretary of State for India, on behalf of the Crown, on the terms stated in the "Memorandum regarding Appointment to and Conditions of Service in His Majesty's Indian Medical Service." This memorandum does not show that pensions are a charge on Indian revenues and are not guaranteed by the British Government, but, on the contrary, conveys the impression that the British Government as the employer is liable for the payment of pensions. The officers after entering the service learn that, though their pay, pensions, etc., are a charge on Indian revenues, the regulations connected with them are framed, amended, or cancelled by the Secretary of State for India in Council, and not by the Government of India. This distinctly proves that the British Government, as employer, is the guarantor of the pay, pensions, etc., of the officers. Under the present system of Government, if the Indian Government failed to meet the financial liabilities of India the British Government would have to find the money, and if she could not get it in India she would have to pay from the British exchequer. In spite of this Sir Samuel Hoare in the House of Commons on March 7th, 1932, stated:

"The pensions of officers of the Indian Service are not guaranteed by the British Government; they are a charge on Indian revenues, and the responsibility for ensuring that the necessary funds are forthcoming rests with the Secretary of State for India."

This statement is confusing, if not contradictory. The responsibility of the Secretary of State for India, as he is the representative of the British Government for Indian affairs, must finally rest with the British Government, and this responsibility amounts to these pensions being guaranteed by the British Government, irrespective of the source of the funds to meet them. The Secretary of State for India should have quoted the authority for his "no guarantee" dictum, especially as he, in several later statements, has admitted that these officers are employees of the Crown. In Common Law the employer is liable for the pay of his employees. Pension is deferred pay. The Secretary of State for India has also stated:

"It is inconceivable to the present Government that in dealing with any scheme of constitutional change in India, Parliament could fail to provide such safeguards as may be necessary to ensure the due payment of pensions to officers who have served the country."

In the Indian White Paper there are safeguards for the rights of the officers of the Indian Civil and Police Services, which like the other safeguards (which may include some for those of the I.M.S.) on paper are decidedly excellent, but no machinery has been provided for enforcing them. Hence where are the safeguards for the unsuccessful action or the inaction of the British Government in the event of the new Indian Government repudiating the financial liabilities of India, including pensions? Consequently to protect our pensions immediate action must be taken from several directions. I recommend that the suggestions in the letters which were published in the *Journal* of April 2nd and 9th, 1932, and June 17th and 24th, 1933, should be carried out, and also that the officers of the Service living in or near London should meet and arrange for evidence to be given before the Select Joint Committee on Indian Constitutional Reform, as has been done on behalf of several of the Indian Services. Delay will be dangerous for us.—I am, etc.,

C. C. MURISON,
Colonel I.M.S. (ret.).

Knocke-Zoute, Belgium,
July 15th.

Ultra-violet Rays in Diseases of the Mouth

SIR,—In Dr. A. Eidinow's interesting article on the above subject in the *Journal* of July 15th (p. 94) there is one statement which requires correction. The author states that "the mucous membrane of the buccal and pharyngeal cavities is three to four times as sensitive to ultra-violet rays as the normal white skin." Actually the mucous membrane of the buccal and pharyngeal cavities is considerably less sensitive than the skin, and I have found that it requires a 50 to 100 per cent. longer exposure to the ultra-violet rays to produce on mucous membrane a reaction comparable to that obtained on the skin.—I am, etc.,

W. KERR RUSSELL.

London, W.1, July 14th.

The "Medical Directory"

SIR,—To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid, we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.—We are, etc.,

J. AND A. CHURCHILL,
Publishers of the *Medical Directory*.

40, Gloucester Place, Portman
Square, W.1, July 17th.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on July 15th the following medical degrees were conferred:

M. CH.—A. E. Porritt.

B.M.—R. Thomas, C. Wilson, J. E. Morley, H. J. Barrie, E. Fowler, T. T. Hardy, C. C. Cobb, P. E. F. Routley, H. R. Bathurst Norman, J. E. Lewis, G. E. M. Benson.

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part II*: S. S. Alam, F. C. Golding, C. A. Grant, Elizabeth M. Haworth, R. M. Patterson, M. Singh, Elizabeth M. F. Taylor, A. R. Thomas.

UNIVERSITY OF LONDON

At a meeting of the Court on July 12th the chairman (Lord Macmillan) presiding, a resolution was passed conveying cordial thanks to the Rockefeller Foundation for a further generous donation to University College, which has benefited in the past from munificent benefactions from the same source. The Foundation, learning of the difficulties of accommodation experienced by Professor A. V. Hill, Foulerton Professor in Physiology, and his research students, have made a grant of £4,000 for the reconstruction and equipment of additional laboratories of the Department of Physiology at the College, to accommodate expansion of Professor Hill's work in biophysics.

The following candidates have been approved in the examination indicated:

ACADEMIC DIPLOMA IN PSYCHOLOGY.—H. A. Fountain, Gertrude V. Gaetjens, Enid Hurst, Sophia Lauterbach, A. F. Mohun, Phyllis D. Short, Eva Sogno, Edith B. Warr.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved in the examinations indicated:

ACADEMIC DIPLOMA IN BACTERIOLOGY.—J. C. Cruickshank, Averil W. Greener, E. H. Hopkins, T. McClurkin, G. Panja, A. E. Platt, Helen M. Russell.

DIPLOMA IN PUBLIC HEALTH.—R. J. I. Bell, W. L. Blakemore, H. G. H. Butcher, C. E. Caudwell, R. C. Cohen, J. G. Currid, P. G. Currid, Hilda M. Davis, A. N. de Quadros, J. D. Dimock, J. C. StG. Earl, C. L. S. Ferdinands, N. M. Goodman, J. M. Henderson, R. S. Johnston, J. Kemp, Laura H. Macfarlane, N. M. Mian, Niaz-ud-Din, B. C. Nicholson, B. O'Brien (awarded mark of distinction), T. B. Pahlajani, G. H. G. Southwell-Sander, J. M. Talati, A. J. Teal, Kathleen C. Vost, G. A. Wilson.

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences:

Entrance Scholarship, B. Brownscombe; *Entrance Exhibitions*, G. B. Jones, J. I. P. James; *Bucknill Scholarship*, D. F. Eastcott; *Bayliss-Starling Memorial Scholarship (Physiology)*, L. Young, B.Sc.; *Cluff Memorial Prize, (Anatomy, Physiology, Pharmacology and Chemistry)*, K. D. Fraser; *Ferriere Scholarship* (tenable at University College Hospital Medical School), D. V. Davies; *Sharpey Scholarship (Physiology)*, E. G. Murphy, B.Sc.; *Anatomy* (Senior Class—Gold Medal), K. D. Fraser; *Physiology* (Senior Course—Gold Medal), J. S. Horn.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examination indicated:

M.B., CH.B.—*‡‖J. D. Hay, †‡Freda B. Bannister, †‖G. Cornah, †‖S. Henderson, †§C. H. Stewart-Hess. *Part B* (1924 Regulations): D. W. Bailey, R. T. Bowes, Clara Burgess, J. M. Edwards, J. G. Hailwood, W. S. Heath, Nancy A. Holt, D. J. Hoskinson, R. A. Hughes, W. R. Hunter, H. B. N. Jennings, W. N. M. Mason, E. T. Owen, S. Papperovitch, F. Pygott, R. G. Reid, Enid Richards, Estelle E. Roskin, T. Seager, G. M. Sleggs, C. W. Warner, C. R. Wright.

* With First Class Honours. † With Second Class Honours.
‡ Distinction in Medicine. ‖ Distinction in Surgery.
§ Distinction in Obstetrics and Gynaecology.

UNIVERSITY OF DURHAM

FACULTY OF MEDICINE

At the convocation held on June 27th the following degrees and diplomas were conferred:

M.D.—I. Bainbridge, L. Barber, B. N. Bhandari, E. C. Brewis, J. L. Burn, S. Curry, W. L. Fulthorpe, J. Giles, J. A. Lennox, D. C. Livingston, J. Maddison, A. J. Moskow, T. W. Stallybrass, S. C. Stonier.

M.S.—G. Y. Feggetter.

M.B., B.S.—W. G. H. Allen, R. A. Blaiklock, A. G. Bowerbank, A. T. Burn, T. M. Clayton, J. S. Coad, T. Cocks, S. Y. Feggetter, G. A. Flann, A. N. Graham, H. C. Lawson, R. P. Leake, H. P. McNamara, T. F. Main, S. Mark, May F. St. J. U. Millar, Laura M. Redhead, E. Scott, G. A. Sharpe, T. E. M. Wardill.

B.HY., D.P.H.—Muriel Brighton, J. L. Burn, R. H. Clayton, W. L. M. Gabriel, G. Millar, J. B. Tilley.

UNIVERSITY OF MANCHESTER

Mr. Frank Clare Wilkinson, M.D., B.D.S.Liverp., D.D.Sc. Melb., at present professor of dental science in the University of Melbourne, has accepted an invitation to the chair of dental surgery and the directorship of the Dental Hospital of the University of Manchester.

UNIVERSITY OF DUBLIN

TRINITY COLLEGE

The following degrees were conferred on July 5th:

M.D.—S. A. Clark, N. M'I. Falkiner, Hope Trant, Marie A. Hadden (*in absentia*).

M.CH.—P. A. Hall.

M.B., B.CH., B.A.O.—D. M. Ahern, H. S. Barber, W. T. Bermingham, Emily M. Booth, Marjorie R. E. Boyd, H. D. Clarke, H. R. Davies, W. P. Griffin, M. J. Horgan, Eileen M. Kennedy, J. K. Lavery, D. M. Mitchell, H. S. Perrot, J. S. M. Pringle, M. J. Roberts, E. C. Rowlette, J. S. Ruddell, C. W. N. Smiley, Ethel S. Wilson, Una M. Irvine (*in absentia*).

QUEEN'S UNIVERSITY OF BELFAST

The following degrees were conferred on July 3rd:

M.D.—J. Boyd, J. H. Gillespie, T. B. H. Haslett, C. W. Kidd, I. H. McCaw, F. E. B. Manning, A. R. Martin, Dorothy Sinton, R. W. M. Strain, R. J. W. Withers.

M.B., B.S., B.A.O.—D. H. Anderson, J. R. Armstrong, J. K. Armstrong, W. G. A. Bingham, J. C. Bowe, T. Boyd, Mary C. Chambers, Mary J. Darby, S. D. Donnan, W. Dornan, S. L. W. Erskine, R. Glenn, J. H. Green, T. R. Haire, W. Hanna, J. D. Hardy, E. Henderson, B. R. Henry, R. W. Hewitt, Winifred M. Jackson, A. Johnson, H. C. A. Johnston, J. H. Kyle, S. W. Liggett, G. P. MacCarthy, J. K. McCollum, C. A. McComiskey, R. F. McKeown, E. W. McMechan, A. McQuiston, F. V. Maclaine, W. M. Martin, W. A. H. Mitchell, Gertrude E. Moffett, L. C. Montgomery, J. C. Nicholson, J. M. O'Kane, J. W. Orr, A. S. Patterson, D. C. Parter, Anne C. Robertson, S. A. Vincent, D. W. Wallace, C. G. Warnock.

D.P.H.—H. C. Armstrong, E. Davison, J. G. Devlin, Laura Levy, Amelie Loewenthal, R. A. N. McMath, H. J. McShane, J. T. Murphy.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly meeting of the Council of the Royal College of Surgeons was held on July 13th.

Sir Holburt Waring was re-elected President, and Mr. G. E. Gask and Mr. Wilfred Trotter were elected Vice-Presidents.

Sir Arthur Keith has retired from the post of Conservator of the Museum, and Mr. R. H. Burne, the Physiological Curator, who has been Acting Conservator for the past nine months, will retire when a new Conservator comes into office.

The following were reappointed to their respective posts for the ensuing Collegiate year: Miss M. L. Tildesley (Curator of the Department of Human Osteology), Sir Frank Colyer (Honorary Curator of the Odontological Collection), Mr. C. J. S. Thompson (Honorary Curator of the Historical Collection), Mr. J. H. Thompson (Bernhard Baron Scholar), and Mr. Laurence O'Shaughnessy (College Research Scholar).

Professor Edward L. Keyes, Professor of Urology, Cornell University, New York, and Professor P. Nové-Josserand, Professor of Orthopaedics and Paediatrics in the University of Lyons, were elected Honorary Fellows of the College.

The Hallet Prize for Anatomy and Physiology was awarded to David Slome, of Capetown University, who also holds one of the Leverhulme Research Scholarships.

The following lecturers were appointed for the ensuing year:

Hunterian Professors.—Mr. W. E. Le Gros Clark, two lectures on the Evolutionary Origin of the Primates; Mr. C. P. G. Wakeley, one lecture on the Surgery of the Pineal Gland; Mr. L. R. Broster, one lecture on the Surgery of the Adrenal; Mr. H. C. Edwards, one lecture on Diverticula of the Duodenum and Ileum, and one lecture on Diverticula of the Colon and Vermiform Appendix; Mr. R. A. Brews, one lecture on a clinical research on the Radium Treatment of Carcinoma of the Cervix Uteri; Mr. Arnold Sorsby, one lecture on Retinal Abiotrophy; Mr. K. H. Watkins, one lecture on the Bladder Function in Low Spinal Injury; Mr. E. G. Muir, one lecture on Carcinoma of the Prostate; Mr. A. A. Davis, one lecture on the Presacral Nerve: its Anatomy, Physiology, Pathology, and Surgery; Mr. J. M. Yoffey, one lecture on the Study of Lymphoid Tissue.

Arris and Gale Lectures.—Sir T. P. Dunhill, one lecture on Diaphragmatic Hernia; Mr. C. B. Henry, one lecture on Aberrant Third Molars and their Menace; Mr. Denis J. Browne, one lecture on Talipes Equino-Varus.

Erasmus Wilson Lecturers.—Mr. R. Davies-Colley, three demonstrations on Pathology; Mr. C. E. Shattock, three demonstrations on Pathology.

Arnott Demonstrator.—Mr. C. P. G. Wakeley, six demonstrations on the contents of the Museum.

It was reported that the Special Trustees of the late James Maxwell Grant Prophit had awarded a Studentship for Cancer Research to Professor Edward Mellanby on the recommendation of this College.

Diplomas were granted jointly with the Royal College of Physicians as follows:

DIPLOMA IN PUBLIC HEALTH.—A. L. Banks, Kathleen F. Butterfield, Evelyn M. Davies, F. M. Day, T. Evans, Beryl M. Furlong, J. A. Galletly, Sybil D. Goodwill, D. R. C. Grey, G. E. Harries, Phyllis N. Hooper, C. K. Lakshmanan, J. G. S. McQueen, P. Morton, J. M. Vine.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—C. E. Bevan, B. B. Bose, Rachel P. Carr, D. N. Chakravarti, A. B. Cook, M. Ellis, J. H. S. Gear, J. A. S. Goonawardena, W. H. Greany, C. E. Gunatilleke, D. J. T. Leneagé, V. S. Majmudar, H. S. Patel, J. H. Stickler.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—H. McI. Birch, C. R. Birnie, Doris E. Bunbury, G. H. Davy, M. M. Deane, H. R. Ferguson, R. C. Forrester, R. S. Kennedy, Annie M. McGrath, F. J. Napier, J. N. Warren, J. F. Wilde.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—Barbara M. L. Abercromby, D. W. Ashcroft, W. H. Bradbeer, K. K. Ghosh, R. W. Higgins, V. R. Kamath, H. D. B. Kelly, F. J. G. Lishman, A. F. Mohamed, D. G. Perrett, A. Rashid.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—G. J. Ahern, K. L. B. D. Bhiwapurhar, Alison M. Collie, J. A. Corkey, H. de Villiers, R. J. L. Fraser, M. W. Joseph, Pah-Chien Kwan, D. C. Macdiarmid, F. Messiha, J. C. Neely, P. A. V. Pillai, C. Shaw, S. Smyth.

DIPLOMA IN MEDICAL RADIOLOGY.—C. D. Costello, R. I. Roberts, H. E. P. Yorks.

LONDON HOSPITAL MEDICAL COLLEGE

The "Price" University Scholarship in Anatomy and Physiology, value £100, open to students of the Universities of Oxford and Cambridge, has been awarded to J. W. Landells of St. John's College, Cambridge.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on July 3rd, the following were admitted Honorary Fellows of the Faculty: James Kerr Love, M.D., LL.D., Professor G. Elliot Smith, M.D., F.R.C.P., F.R.S., Sir Malcolm Watson, M.D., LL.D.

At the same meeting the following were admitted Fellows of Faculty: A. A. Charteris, V. Iswariah.

The Services

Major-General C. A. Sprawson, C.I.E., Indian Medical Service, has been appointed honorary physician to the King, vice Colonel W. H. Leonard (retired).

The King has appointed Major H. C. Sinderson, O.B.E., R.A.M.C. (Militia), to be a member of the Royal Victorian Order (Fourth Class), on the occasion of the visit to London of the King of Iraq.

DEATHS IN THE SERVICES

Lieut.-Colonel Edwin Harold Brown, Bengal Medical Service (ret.), died at Reigate on June 19th, aged 71. He was born at Bombay on July 21st, 1861, and was educated at Bombay University, and at University and King's Colleges, London. After obtaining the L.M.S. at Bombay, he came home, and took the L.R.C.S.Ed. and L.R.C.P. Lond. in 1884. Subsequently he took several other degrees and diplomas: the M.D.Brux., with honours, in 1894; the M.R.C.P.Lond. in 1902; and in 1903 the M.D.Durh., the F.R.C.S.Ed., and the D.P.H. of the London Colleges. Entering the I.M.S. as surgeon on September 30th, 1886, he became lieutenant-colonel after twenty years' service, and retired on November 10th, 1909. He served on the North-West Frontier of India in the Tirah campaign of 1897-8, receiving the frontier medal with two clasps. Most of his service was spent in civil employ in Bengal, where he was civil surgeon of Puri, of Darbhanga, and of the Twenty-four Parganas. After his retirement he practised in Calcutta for some years. He was three times summoned to attend the Maharajah of Nepal. On the last occasion, in 1929, he found that the Maharajah had died before his arrival, and by the special request of the Maharajah's sons he remained at the capital until the end of the period of mourning, when they were able to see him. He took a keen interest in the question of snake poisons, and for some time he acted as secretary of the Calcutta Zoo. He was thrice married, and leaves a widow and son.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Rent and Mortgage Interest Restrictions (Amendment) Act and the Essex County Council Act have received the Royal Assent. The House of Commons this week considered the India Office Vote, the Road and Rail Traffic Bill, and minor measures.

The recess is expected to begin on July 28th.

Mr. Ramsay MacDonald announced to the House of Commons on July 17th a Government decision to guarantee for a term of years a preference upon motor spirit produced from British coal, shale, or peat.

In the House of Commons on July 17th the Essex County Council Bill was read the third time.

In the House of Lords on July 17th, the Slaughter of Animals Bill passed through committee.

The Work of the Indian Medical Service

Sir S. HOARE, in presenting the Estimates for the India Office, on July 17th, said that an almost incredible amount of suffering and inefficiency in many Eastern countries was due to the low standard of living. Any efforts, therefore, that were successful in raising the standard of health redounded not only to the credit of the men who made those efforts, but in a special manner to the future prosperity of the country in which those efforts were made. In India they had a very fine record in the field of health administration. He was not sure if members always realized the debt of gratitude which, for many years past, not only India but the whole world, had owed to the pioneer work of the Indian Medical Service. Many of the most notable achievements in the field of surgery and medicine had been due to the experiments and the experience of officers in the Indian Medical Service. During the last twelve months, in spite of many exceptional difficulties—for instance, the difficulty of finding the funds necessary for medical research and medical administration—the record had been on the whole very satisfactory. A great Institute of Preventive Medicine had been opened in Calcutta. Its foundation was due, in the first instance, to the beneficence of Mr. Rockefeller, and its maintenance came within the responsibility of the Government of India. Certain experiments had recently been made in India with a view, first, to controlling the spread of malaria, and, secondly, to preventing the relapses of the patient after he had begun to recover. The scourge of malaria was so great in India that probably in any given year there might be as many as 10,000,000 people being treated for that disease. It was probably within the mark to say that between 1,000,000 and 2,000,000 people died from malaria in India every year. He was glad to be able to tell the committee that a new drug had been discovered called atebrin, and, as far as his advisers could judge, it looked as though it would be most effective in preventing a relapse, which had always been the danger of malaria epidemics. He gave those two instances to the committee—he could give many others—to show how active were the efforts of the Indian Medical Service in the field of health, and how, year after year, they were meeting with the success they deserved. They could not control the weather, but they could to a great extent control its effects. It was within the memory of everyone that India was periodically subjected to terrible famine, due to drought, which swept away millions of its population. He was glad that as a result of the work that had been carried out in the field of irrigation that chapter was for ever ended. They could not control droughts, but they could ensure by a system of irrigation that the canals should still be filled with water, even in the dry seasons, and work was being continued on various irrigation projects.

The DUCHESS OF ATHOLL said that Sir S. Hoare had praised the health administration of India, but had said very little about the hospitals. She had had brought to her notice lately, by a senior officer of the health service in one of the Provinces who had recently retired, the fact that an increasing number of hospitals had passed under the control of local authorities, with a very grave loss of efficiency. They would

all agree with the praise which the Secretary of State had given to the Indian Medical Service, but the right honourable gentleman had not reminded the committee how largely the Indian Medical Service was being replaced by the provincial medical service, or the British medical officer in the Indian Medical Service by the Indian. It had lately been said to her by more than one person who had lived long in India that the rank and file were very reluctant to go to a hospital of which the presiding officer was not a European. While many Indians made admirable medical officers on the technical side, they tended to be below the British standard in the administration and control of a staff.

Mr. BUTLER, replying to the discussion, said that there had lately been a definite improvement in the recruitment of Government medical officers so far as numbers were concerned, and on the whole the quality of the candidates had also improved. The number of European candidates had increased from thirteen in 1931 to twenty-three in 1932, and during the first six months of the present year twenty-seven had been appointed. There was every possibility of a larger recruitment his year than during any year since the war.

The House agreed to the Estimates after debate and a division.

The Health of the School Child

Mr. RAMSBOTHAM presented the Estimates for the Board of Education in England and Wales to the House of Commons in committee on July 12th. He recalled the forecast by the Government actuary that a fall of something like 350,000 in the number of school children could be anticipated by 1936, and that by 1948 the decrease would be 1,000,000. The Board did not know how the fall would be distributed in the various areas, which made it necessary to have a careful survey and to draw the attention of local authorities to the point. The closing of redundant schools was a field of economy. The Estimates showed a somewhat increased item for special medical services, and the Board was prepared to approve any urgently needed extensions when the medical arrangements were obviously incomplete. The money allotted in the Estimates for the provision of meals was the same as last year. That was because, after most careful examination, the Board did not find evidence of increasing malnutrition. If the local authorities had good grounds for extending arrangements for the provision of meals they would find the Board sympathetic. He characterized as quite inadequate the statement made in the House last February by Mr. Lansbury that medical officers of health reported steady deterioration in school children. Sir George Newman, the Board's Chief Medical Officer, reported last autumn that there was as yet no evidence of a lowering of health or of impaired physique. That report was borne out by the reports of school medical officers which the Board was receiving. The report of the School Medical Officer for London just published was that only one more in 1,000 children was found to have subnormal nutrition, compared with 1931. The report pointed out that this fractional increase was due to the effects of a widespread epidemic of measles which lowered the vitality of the younger children. The year 1932 showed a substantially better position as regards malnutrition than 1925. The London report was that children over 7 were found to be in better condition in 1932 than in 1931. Out of 180,000 children examined only twenty-nine were found to be very ill nourished. Malnutrition in many cases was due to organic defects, and not necessarily to inability to obtain food. Many other areas had suffered more distress than London, but for 1932, as compared with 1931, some showed increases in health of school children and some decreases, and on balance there was practically no change. Decreases were shown in Glamorganshire, Monmouthshire, Cardiff, and Newport. Throughout the country altogether, cases of malnutrition had fallen from 11.2 per 1,000 in 1931 to 10.7 in 1932. It appeared on the whole that the tide had turned.

Mr. MORGAN JONES regretted that Mr. Ramsbotham had not referred to nursery schools where children's bodies might be cared for at an earlier stage than was now possible. Children at an early stage of formal school life were often found by the medical service to be in a condition which, if attended to medically, would have avoided subsequent expenditure of public money. He hoped that the arrest of the nursery school movement was only for a short time. He was surprised at Mr. Ramsbotham's remarks on malnutrition, but did not throw any doubt on the certificates received by the Board from medical officers. It was essential that constant watchfulness should be maintained on the physical conditions in South Wales. Mr. COVE said schools dangerous to the health of the children still existed by the hundred. He read reports on a dilapidated and leaking school, and on another where the temperature of the rooms was seldom above 50 degrees on winter days. He asked the Board to speed up the removal of these schools. In estimating malnutrition among school children he asked Mr. Ramsbotham not to rely solely on the reports of local medical officers. He should tell his central officers to examine the position. In the Welsh villages the marks of continued unemployment could be seen in the children's shoddy boots, poor clothes, and pale faces. Sir WILLIAM JENKINS said the time was opportune for raising the school age to 15. The Minister should read the report on this subject from the Kent Education Committee, prepared by Dr. Salter Davies.

Replying to the debate, Mr. RAMSBOTHAM said it was impossible for the Board of Education to investigate malnutrition in each area, and for its own officers to make reports. He would look into the cases of dilapidated or insanitary schools mentioned by Mr. Cove if particulars were given him. The power of the State to deal with such schools, if they were non-provided schools, was strictly limited.

A motion to reduce the Estimates was defeated by 151 to 32

Emergency Treatment in Road Accidents

The Select Committee of the House of Lords on the Road Traffic (Emergency Treatment) Bill heard evidence on July 13th. The Bill seeks to secure remuneration to registered medical practitioners and hospitals for emergency treatment to persons injured through the use of motor vehicles on roads. Lord IVEAGH, the chairman, said that what the committee had in mind was a payment of 12s. 6d. to the doctor who first arrived on the scene, plus 6d. a mile from whence he came, and a flat rate of 10s. 6d. to hospitals if an injured man went there first. It was pointed out in evidence that the motoring community already contributed about £39 millions a year in taxation, and that it ought not to be beyond the capacity of a Chancellor of the Exchequer to meet out of that sum the claims of the doctors, which were estimated to amount to about £70,000. Dr. R. FORBES, Deputy Medical Secretary of the British Medical Association, agreed that 12s. 6d. would be a suitable flat rate fee for doctors who rendered emergency treatment. He intimated that the British Medical Association would be willing to co-operate in any scheme which the committee might formulate to that end. Sir STENSON COOKE said the Automobile Association sympathized with any reasonable step to secure that doctors were adequately paid for emergency treatment of injured persons, and would support an equitable measure to avoid hardship to hospitals, but the Bill would place on the motorist the responsibility for paying fees irrespective of the question of negligence, which was unfair. The payment of medical and other expenses should rest with the negligent party. Persons other than motorists who caused accidents would be relieved of their rightful responsibility by the Bill. Hospitals ought to meet the expenses they incurred in dealing with road accidents out of the ordinary contributions to which motorists paid their share.

Air Ambulance in the Highlands and Islands.—On July 11th Mr. SKELTON, replying to Mr. Kirkwood, said that the extent to which aeroplanes could be used for the conveyance of medical and surgical cases in the Highlands and Islands area was limited in the first place by the fact that suitable landing places were not available in many of the islands. Except in fine weather, the maintenance of an aeroplane or seaplane service might not be practicable. Any arrangements that might be made with a company or organization for the maintenance of an air ambulance service would require to include the reservation of a number of aeroplanes for use on requisition, but the uncertainty whether those aeroplanes could be used on any given occasion would make

the payment of a subsidy for their maintenance a doubtful use of public money. The policy of the Department of Health in the administration of the Highlands and Islands (Medical Service) Fund had been to encourage the development of a local hospital service with skilled surgeons. If, however, pending the development of such a local service in any district it were found that the practical difficulties in the way of maintaining an air ambulance service could be overcome, the Secretary of State for Scotland would be glad to co-operate with any organization which would undertake the local arrangements for the transport of urgent cases by aeroplane or seaplane to the nearest available hospital.

High Temperature in Deep Mining Operations.—On July 11th Mr. E. BROWN told Mr. Tinker that no representations had been made to him with regard to the high temperature prevailing in some coal mines, or that the fact that men working in those mines suffered in health in consequence of the heat and were unable to work full time. The problem of reducing the high wet-bulb temperatures which existed in some of the deeper mine workings was constantly being dealt with by the managers and the inspectors. He was advised that while work under such conditions was fatiguing, it was not usually a cause of ill-health. The deep mining of coal in this country must necessarily extend in years to come, and for this reason the development of ameliorative measures was being continuously studied, both in its medical and practical aspects, by the Hot and Deep Mines Committee, which co-operated with the Safety In Mines Research Board.

Classification of Patients in Mental Institutions.—On July 11th Mr. TURTON asked the Minister of Health how many cases had been brought to his notice in the last twelve months of voluntary patients being lodged in the same ward or room as certified patients in mental institutions, hospitals, nursing homes, or places approved by the Board of Control under Section 1 of the Mental Treatment Act, 1930. Mr. SHAKESPEARE replied that one case had been brought to the notice of the Minister in which this matter was the subject of complaint. The case was investigated, and it did not appear that there was any substantial ground for complaint. The classification of mental patients had to be based mainly on their condition and symptoms, and it was not necessarily desirable to provide separate accommodation for voluntary patients, even if it were possible to do so. The Minister was advised that the present arrangements were generally as satisfactory as was practicable, and the number of voluntary patients was steadily increasing. He did not think it would be advisable to circularize local authorities and other persons in charge of institutions on the matter.

Foot-and-Mouth Disease: Efficacy of Present Measures.—On July 11th Dr. ELLIOT presented an estimate for the salaries and expenses of the Ministry of Agriculture and Fisheries. He said that in 1932 the outbreaks of foot-and-mouth disease in France were 9,449, in Germany 18,869, in the Netherlands 10,865, and in England 25. These results were not secured without the co-operation of the whole community, both agricultural and non-agricultural. On the night of January 4th–5th, when, from some unknown source, foot-and-mouth disease reached the railway loading banks at Reading, so efficient was the ordinary routine disinfection of those loading banks that no single case occurred after that night. Although the disease was reported from many parts of the country, the veterinary service was so efficient that the whole outbreak was cleaned up in eighty days at the cost of only £32,000 in compensation for slaughter.

State Grant for Royal Veterinary College.—In replying to the debate on the Ministry of Agriculture Vote, on July 11th, Dr. ELLIOT said that the Royal Veterinary College had now raised the £100,000 required to earn the promised State grant. He could not yet give an indication whether a Government contribution to match would be forthcoming.

Local Government Officers' Superannuation.—When the Local Government and Other Officers Superannuation (Temporary Provisions) Bill came before the House of Commons on report Sir HENRY JACKSON moved an amendment to provide that the question whether a reduction in remuneration could be disregarded should in all cases be decided by the Minister. The Bill provides for decision by the Minister or by arbitration. Mr. SHAKESPEARE argued that the clause should be left as it stood, and Sir Henry Jackson withdrew his amendment. On the motion for the third reading Mr. GREENWOOD asked whether the Government would undertake to insert a date a little later than April 1st for the end of the period during which acceptance in good faith of a "cut" should not impair pension rights. Mr. Shakespeare said he thought it reasonable that if the period were extended to July 1st, the point would be covered. The Government might insert that in the House of Lords. Sir Henry Jackson thanked Mr. Shakespeare, and the Bill was read a third time.

Mortality in England and Wales.—In reply to Mr. Rhys Davies on July 13th, Sir HILTON YOUNG stated that the general and infant mortality rates for England and Wales for the past five years were:

Year	General Death Rate per 1,000 estimated population	Infantile Mortality Rate (deaths under 1 year of age per 1,000 live births)
1928	11.7	65
1929	13.4	74
1930	11.4	60
1931	12.3	66
1932	12.0	65

Hunger-strike Prisoners in the Andamans.—On July 17th Mr. D. GRENFELL asked the Secretary of State for India if the Government of India had received any reports from Colonel Barker, Inspector-General of Prisons, Punjab, as a result of his mission to the Andamans to inquire into the medical arrangements there for prisoners on hunger strike. Sir S. HOARE replied that this officer was sent, not to make a formal inquiry and present a report, but to consult with and advise the local authorities. He had not yet received any detailed information regarding his visit.

Medical Advice by Radiotelegram.—Colonel SANDEMAN ACLEN asked the Postmaster-General, on July 17th, if he would arrange that British vessels should be able to ask for medical advice through coast wireless stations free of all wireless charges, in conformity with Sweden and other nations. Sir K. WOOD replied that the practice varied in different countries. Some, like Sweden, made no charge for transmitting radiotelegrams asking for medical advice; in others, including France, Germany, and Great Britain, such messages were charged for. Under Section 34 of the Merchant Shipping Act, 1906, the owner of a British ship was liable for the expense of providing medical advice for sick or injured members of the crew; and he did not think there was any justification for transferring the cost of messages asking for such advice from the shipowner to public funds.

Cost of Mental Hospitals.—Replying to Mr. C. Edwards on July 13th Sir HILTON YOUNG said that the net expenditure of local authorities in England and Wales on the lunacy service, falling on public funds, in 1930–31 was £7,138,403. The cost of the lunacy service, in common with that of other services, was defrayed partly out of rates and partly out of the Exchequer grants under the Local Government Act, 1929, but as these grants could not be allocated to particular services the amount falling on rates for the lunacy service could not be stated. The total cost of the Board of Control for the year ended March 31st, 1932, was £139,533. The total cost of maintenance of the patients in public mental hospitals in England and Wales for the year ended March 31st, 1932, was £6,921,692, including £3,103,820 in respect of salaries and wages of staff. Sir Hilton Young also told Mr. C. Edwards on July 13th that the Board of Control's estimate of £500 as the capital cost of providing a bed in a mental hospital was made in 1931, and he was advised that the comparable figure to-day would be about £440. In 1932 the Board of Control approved plans for the provision of 979 beds, and during the first six months of the present year plans for 999 beds; they had under consideration plans for approximately another 3,000 beds. These schemes were, however, with very few exceptions, for additions or alterations to existing mental hospitals, and the cost would not approach the sum of £500 per bed.

Notes in Brief

Persons in receipt of poor relief in England and Wales (excluding rate-aided patients in mental hospitals, persons in receipt of domiciliary medical relief only, and casuals) on Saturday, June 24th, 1933, numbered 1,272,058.

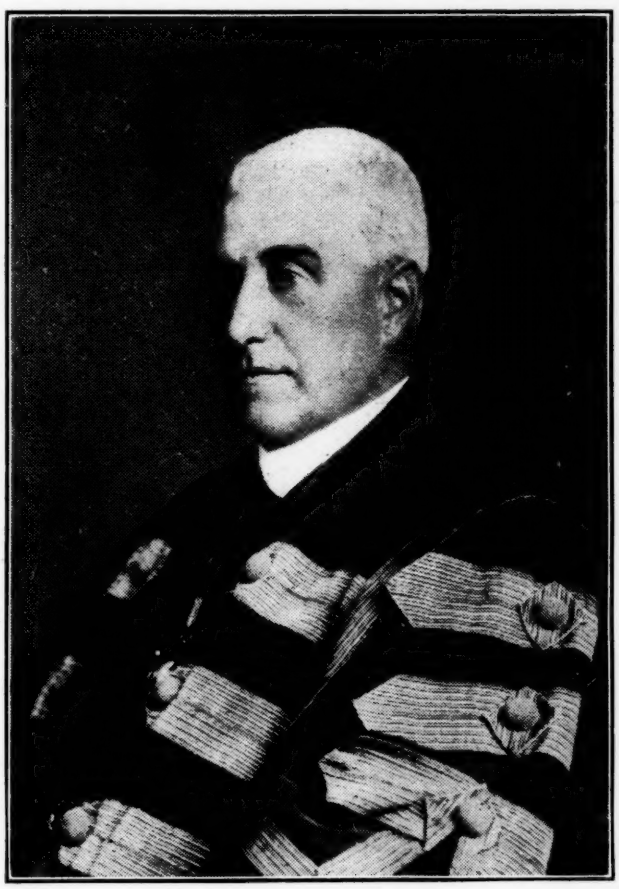
The first meeting of the Committee on Scottish Health Services has been convened for July 28th.

Obituary

SIR JAMES CRAIG, M.D., F.R.C.P.I.

Physician, Sir Patrick Dun's Hospital, Dublin; King's Professor of Physic, Trinity College

Sir James Craig, whose death took place at his residence in Merrion Square, Dublin, on July 12th, was a physician very well known throughout Ireland. Born at Castlecatt, Bushmills, County Antrim, in October, 1861, he had reached his seventy-second year. After schooldays at the Academical Institution, Coleraine, he entered as a medical student at Trinity College, Dublin, and obtained the B.A. and M.B., B.Ch. degrees of the University of Dublin in 1885. He proceeded M.D. in 1891, and was elected a Fellow of the Royal College of Physicians of Ireland in the same year. For many years King's Professor of the Practice of Medicine in the School of Physic of Trinity College, Dublin, he was also physician to Sir Patrick Dun's Hospital, physician in ordinary to the Lord Lieutenant of Ireland, consultant physician to Steevens' Hospital and to the Crooksling Tuberculosis Sanatorium, etc. Other offices Sir James filled were those of member of the Council of the University of Dublin and examiner in medicine at Trinity College, and extern examiner in medicine at Queen's University, Belfast; and from 1897 to 1910 he acted as Registrar of the Royal College of Physicians of Ireland, of which he became vice-president and censor, and president in 1919. He received the honour of knighthood in 1921.



SIR JAMES CRAIG

From 1904 to 1910 he was general secretary and editor of the Royal Academy of Medicine in Ireland, and was elected president in 1924. An active supporter of the British Medical Association in Ireland, he was president of the Leinster Branch, and for many years previously had acted as its honorary secretary; he was also a member of the Irish Committee until his death. At the Annual Meeting of the Association in Birmingham in 1911 he was vice-president of the Section of Neurology and Psychological Medicine, having held the same office in the Section of Medicine in 1908. When the Irish Free State was established in 1922 Sir James Craig was elected one of the three representatives of the University of Dublin in the Dail Eireann, where he sponsored the Irish Hospitals Sweepstakes legislation, and it is generally acknowledged that to him more than to any other person the Irish hospitals owe their assured financial position, structural modifications and expansions, and their fuller scientific equipment. He took a keen interest in all public health matters in the Dail.

In former years he contributed a number of papers on clinical subjects to the *British Medical Journal*, the *Dublin Journal of Medical Science*, and the *Transactions* of the Royal Academy of Medicine in Ireland. At the forthcoming Annual Meeting of the British Medical Association in Dublin this month he was to have held office as vice-president of the Section of Medicine.

Sir James Craig married in 1906 Kathleen, daughter of Thomas Millar, and she, with a family of three sons and a daughter, survives him. Two of his sons are in the medical profession: Dr. W. J. Craig is house-surgeon at Sir Patrick Dun's Hospital, and Dr. J. W. Craig is practising at Hereford.

[The photograph reproduced is by Lafayette Ltd.]

JOHN HILL ABRAM, M.D., F.R.C.P.

Late Professor of Medicine and Therapeutics, University of Liverpool, and President of the Royal Infirmary

We record with regret the death, on July 13th, of Professor J. Hill Abram, the well-known Liverpool physician, after an illness of three weeks.

Born at Waterloo seventy years ago, John Hill Abram had spent nearly the whole of his life in or near Liverpool. From Liverpool Institute he entered the old Royal Infirmary School of Medicine in 1882, winning several prizes, including the Derby exhibition in clinical medicine and surgery in 1887. He also studied for a year at University College, London. In 1887 he obtained the diplomas M.R.C.S. and L.R.C.P., and in the next year graduated M.B.Lond., with first-class honours in medicine. In 1889 he proceeded M.D. Membership of the Royal College of Physicians followed in 1891, and he was elected to the Fellowship in 1906. His teaching work at University College, Liverpool, began in 1890, when he was appointed assistant lecturer and demonstrator in pathology. While holding this post he was also assistant physician at Stanley Hospital from 1893 to 1896. At the Royal Infirmary he served first as house-physician and then as medical tutor. In 1902 he was elected honorary physician, and retained the appointment for over twenty years, becoming consultant physician in 1924. There followed in 1931 the conferment upon him of the well-deserved honour of president of the Infirmary. The outstanding event of his year of office was the opening of the new nurses' home.

In addition to his teaching and hospital appointments Professor Hill Abram practised in Rodney Street for about forty years, retiring in 1931. His outstanding clinical and teaching abilities were quickly recognized, heightened as they were by a keen sense of humour, a facility of exposition, and a kindliness of nature which won for him a very large number of personal friends. In the University he was professor of therapeutics and medicine for a combined period of eighteen years, having succeeded the late Professor T. R. Glynn in the latter chair. Since 1924 he had been Emeritus Professor. On his retirement from the

chair of medicine he was presented by the students with a water-colour painting, together with a formidable birch rod, which was described as "the insignia of the Order of the Birch, presented for conspicuous merit in the application of the art over an extensive period." He was the joint author of a handbook of pathological anatomy, and had published various clinical papers. During the war he acted as consulting physician to the military hospitals established in the School of Tropical Medicine and the Wallasey Town Hall, and to the Mersey Defences Acute Diseases Hospital, Blundellsands. He was also in joint charge of the naval and military beds in the Royal Infirmary. He was chief medical officer of the Royal Insurance Company and of the Pioneer Life Assurance Company.

With his wide sympathies and interests he found time to take an active part in various societies and public undertakings. He was president of the Liverpool Medical Institution in 1922–3, and of the Association of Physicians of Great Britain in 1928. He had also been president of the medical students' debating society, and of the University of Liverpool Old Students' Association. For a very considerable time he served on the Council of the Royal College of Physicians, and represented the Council for many years on the Court of Liverpool University. Keenly interested in literature and art, he rendered valuable services as a co-opted member of the Libraries, Museums, and Arts Committee of the Birkenhead Corporation. He had been president of the Liverpool Athenaeum in 1915, and at the time of his death was president of the Liverpool University Club. His membership of the British Medical Association continued throughout his professional life. He was vice-president of the Section of Pharmacology and Therapeutics when the Association met in Liverpool in 1912, and vice-president of the Section of Medicine at the Annual Meeting in Edinburgh in 1927. Golf was his favourite recreation, and he was often to be seen on the links of the Royal Liverpool Club at Hoylake, near which he lived in his latter years. He retained his youthful appearance and outlook to the end, and never lost his alertness and vigour. One of his maxims was: "Never ride if it is possible to walk."

A memorial service was held in Liverpool Cathedral on July 15th. A long line of students who have passed through Liverpool University and the Royal Infirmary will treasure throughout their lives a grateful and affectionate memory of a great teacher and a warm-hearted friend. Professor Hill Abram was a bachelor, and lived with his only sister, who survives him.

A. C. FOWLER, *D.S.C.*, M.D.,

Aberdeen

ALEXANDER COUTTS FOWLER, M.D., D.M.R.E., of Aberdeen, died in an Edinburgh nursing home on July 6th, after an operation, at the early age of 38. A native of Aberdeen, Dr. Fowler was educated at Peterhead Academy and Aberdeen and Cambridge Universities. His university career was interrupted when he volunteered for active service in 1915. He served with great distinction as a surgeon probationer in the Royal Navy on the "Q" ships, and for his work in that capacity he was awarded the D.S.C. On being discharged in 1918 he resumed his university studies and graduated M.B., Ch.B.Aberd. in 1919 and M.D. in 1923. Subsequently he was resident medical officer in the Royal Hospital for Sick Children at Aberdeen and later was in general practice for a short time in Eynsham, near Oxford. Afterwards Dr. Fowler was resident medical officer at Tor-na-Dee Sanatorium. He was specially interested in *x*-ray work. On leaving Tor-na-Dee he obtained in 1924 the diploma of medical radiology and electricity of Cambridge University. He thereupon returned to Aberdeen and commenced practice as a radiologist. He was appointed honorary assistant radiologist to the Royal Hospital for Sick Children, radiological assistant in the Anatomy Department of the University, and radiologist at the Kepplestone and Armstrong nursing homes. Dr. Fowler was unmarried.

Dr. A. GREIG ANDERSON writes:

By the tragic death of Dr. A. C. Fowler at the early age of 38 the medical profession of Aberdeen has sustained an irreparable loss. His skill as a radiographer was widely known and appreciated, for he brought to his subject that wide knowledge of medicine and surgery which made his opinion of such value to his colleagues, an opinion based not merely on his radiological findings but on a full consideration of the history and all the facts of the case. To his work he devoted himself unsparingly in spite of the increasing difficulties caused by his illness. As an undergraduate he volunteered for service as a surgeon probationer and served under Admiral Gordon Campbell, V.C. Among the numerous wreaths which testified to the love and esteem in which he was held, one bore the legend "To a gallant shipmate," and surely in that was summed up his life. To his friends he was known as a man of great personal courage with a gentleness and humility of character which are too rare. To personal gain or praise he was indifferent, and of his numerous acts of charity and kindliness quietly performed few were ever known. His death has caused profound sorrow among his intimate friends, for whom he had as deep an affection as they had for him.

THE LATE MR. HAMILTON RUSSELL

Professor WILLIAM WRIGHT writes:

The tributes already paid to the memory of Hamilton Russell cannot, I imagine, have failed to show how rare a spirit has passed from our midst. I recall a remark made to me when in Sydney—"If ever" so it ran, "I wanted the head of a Saint for a stained-glass window I should at once think of Hamilton Russell." The impression he produced upon me during the few days I knew him in Melbourne was that of a man living somewhat apart, but exerting in no little measure, simply by his mere presence, an indefinable influence on all who came in contact with him—such an influence as that which finds, perhaps, its most perfect expression in Browning's *How it Strikes a Contemporary*.

Dr. GEORGE R. LIVINGSTON of Dumfries, who died lately in his sixty-third year, was one of the leading medical practitioners in the burgh, and a magistrate. He was a native of Edinburgh, the son of the late George Kinloch Livingston, and was educated at the Edinburgh Academy and at the University of Edinburgh, graduating M.B., C.M. in 1895, and M.D. in 1904. He took the diploma of F.R.C.S.Ed. in 1916 and that of L.M. at the Rotunda Hospital, Dublin, in 1899. After holding various hospital appointments in Edinburgh, Dr. Livingston went to Dumfries in 1899, and soon established a reputation as a successful surgeon. He served for some years as assistant surgeon to the Dumfries and Galloway Royal Infirmary, and later became senior surgeon. He was also consulting surgeon to the Castle Douglas Cottage Hospital. Dr. Livingston took great interest in the work of the British Medical Association, and served as Representative of his Division in the Representative Body in 1906 and 1909, and was a member of the Central Council of the Association in 1910–12. He was chairman of the Dumfries and Galloway Division in 1927–28, and vice-president of the Section of Naval and Military Services when the Association held its annual meeting in Aberdeen in 1914. During the war he rendered varied and distinguished service in several places, including two years' service on hospital ships, when he was

surgeon specialist H.M.H.S. *Herefordshire*. Subsequently he became surgeon specialist to the 21st General Hospital at Alexandria, and while there was promoted to be officer in charge of the surgical division, which position he held until demobilization in 1919; he held the commission of Lieutenant-Colonel R.A.M.C. On his return to Dumfries he took an active part in local affairs, and sat as a member of the town council for three years.

The following well-known foreign medical men have recently died: Dr. PAUL HARI, professor of physiology and pathological chemistry at Budapest, aged 64; Dr. VIKTOR KOLLERT of Vienna, author of works on the treatment of nephritis and coma, aged 46; Professor VIKTOR HACKER, formerly head of the municipal hospital at Graz, aged 81; Professor HERMANN THOMSON, for many years director of the Women's Clinic at Odessa, aged 71; Dr. MINA MINOVICI, professor of forensic medicine at Bucarest, aged 75; Dr. ANNIBAL THÉOHARY, professor of clinical therapeutics at Bucarest; Dr. JOHN CHALMERS DA COSTA, Samuel D. Gross Professor of Surgery at Philadelphia, and author of a *Manual of Modern Surgery*, aged 70; Dr. CLARENCE ERFORD COON, professor of orthopaedic surgery at Syracuse, New York, aged 65; and Dr. WILLIAM OPHÜLS of San Francisco, dean and professor of pathology, Stanford University School of Medicine, aged 61.

Medical News

At the International Congress on Goitre, to be held in Bern from August 10th to 12th, the following subjects will be discussed: hyperthyroidism, introduced by Drs. De Jongh (Holland), Holst (Norway), Plummer (United States), Eppinger (Germany), and Peycelon (France); the aetiology of goitre, introduced by Dr. Pighini (Italy) and Sir Robert McCarrison (British India); malignant disease by Sir Thomas Dunhill (England) and Dr. De Quervain (Switzerland). Further information can be obtained from Professor Pighini, Istituto di San Lazzaro, San Maurizio, Emilia, Italy.

A tour embracing health resorts and centres of medical interest will begin at Vienna on August 30th, and extend through Austria, Italy, and France. The cost is 300 schillings. Among the places to be visited are Venice, Florence, Rome, San Remo, Mentone (including an excursion to the establishment of Professor Voronoff), Nice, Cannes, and Milan. Further information may be obtained from Dr. Friedrich Barach, Biberstrasse 11, Vienna I.

Messrs. H. K. Lewis and Co., Ltd., announce for immediate publication *Recent Progress in Medicine and Surgery, 1919–1933*, by various contributors, edited by Sir John Collie, with a foreword by Lord Horder.

The issue of *Le Scalpel* for July 8th contains the proceedings of the recent *Journées médicales de Bruxelles*, at which the inaugural address was delivered by Professor Charles Sarolea of Edinburgh, on the doctor and medicine in European literature.

Dr. J. L. W. Kitching, on his retirement from active practice, was presented on July 4th, at the Parish Room, Cobham, Surrey, with an address, signed by hundreds of patients and friends, expressive of their great appreciation of him as a medical man, and deep regret at their loss. The address, with an album containing the names of the subscribers, was accompanied by a cheque for £584. Dr. Kitching served on the staff of the Cobham and District Cottage Hospital from its foundation, and was consulting surgeon to the Schiff Home of Recovery.

Sir Hilton Young, the Minister of Health, has appointed Dame Janet M. Campbell, D.B.E., M.D., M.S., and Miss F. Barrie Lambert, C.B.E., M.B., B.S., D.P.H., to be additional members of the Departmental Committee which he set up at the beginning of July to consider and report on the questions of the capital cost of construction and the annual cost of maintenance of various classes of public buildings provided by local authorities. (See *British Medical Journal*, July 15th, p. 123.)

A feature of the annual St. Dunstan's Regatta held last week at Putney was a race between a four of Old Blues and a crew of St. Dunstan's war-blinded men. The Old Blues Four, which had been got together by Dr. Malcolm Donaldson, F.R.C.S., who was in the Cambridge boat in 1906, consisted of himself, Sir Harold Gillies, F.R.C.S. (Cambridge, 1904), Dr. J. S. Burn (Cambridge, 1907), and Dr. E. N. Showell-Rogers (Cambridge), and the cox was Dr. R. Knox, who was in the Oxford boat as recently as 1925. Last year in the Regatta Captain Ian Fraser, Chairman of St. Dunstan's, got up a similar four of members of Parliament which he himself stroked.

The German Physiological Congress which was to have been held this year at Innsbruck has been indefinitely postponed. The following German congresses will be held in September: Society for Thalassotherapy at Norderney in the first week of September; twenty-second congress of the Society for Forensic and Social Medicine at Munich, September 4th to 7th; Society for Study of Heredity at Göttingen, September 6th to 9th; Society of History of Medicine at Erfurt, September 9th and 10th; Orthopaedic Society at Leipzig, September 11th to 13th; Society for Microbiology at Munich, September 21st to 23rd.

Dr. Roch, professor of clinical medicine at Geneva, and Dr. Haskovec, professor of clinical neurology at Prague, have been elected foreign corresponding members of the Académie de Médecine; and Dr. E. Kohn-Abrest of Paris has been nominated foreign corresponding member of the Royal Academy of Medicine of Belgium.

An international post-graduate course will be held in Vienna from September 25th to October 7th, the subject being the more important discoveries in connexion with therapeutics, including such procedures as collapse therapy and the first setting of fractures. For further details application should be made to the Dean of the Faculty of Medicine at the University, Ring des 12 November, Vienna I.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is **18**, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin); and of the Scottish Office, **7**, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: **24361** Edinburgh).

QUERIES AND ANSWERS

Climate and Rheumatism

"J. F. M." would be glad to know of a suitable area in the North Riding of Yorkshire for a sufferer from chronic rheumatism.

*** We are advised by a well-known authority on climatology that the North Riding of Yorkshire cannot be recommended for sufferers from chronic rheumatism, but comparatively favourable locations might be found on the west side, on dry soil, with southerly aspect and good shelter from the north and east.

Income Tax

Expenses—Board and Lodging of Assistant, and Garage, etc.

"R. W." employs an assistant who "lives in"—can he charge the value of the board and lodging as an expense, and, if so, would £2 2s. per week be reasonable? Also, can he charge for the use of garage and consulting room in addition to the one-third of the cost of "repairs, renewals, heating, and lighting" of his house, which he owns, and which is assessed at £85?

⁂ The cost of the assistant's board and lodging, including an appropriate share of the general household expenses, can be charged; obviously much depends on the circumstances of each case, but £2 2s. per week seems reasonable. As regards the use of the garage, consulting room, etc., the usual practice is to agree on some fraction of the general expenses to cover that factor. We suggest that "R. W." might reasonably claim one-half instead of one-third of the general expenses on that basis, but the force of any such claim is weakened by the fact that one element of the total general costs is reflected in the other claim of £2 2s. per week for the assistant.

Engagement of Assistant: Expenses

"P. Q. and R" employed an assistant for six months. A service agreement was drawn up on the usual lines, and £3 was paid in legal charges for its preparation. The inspector of taxes has declined to allow the £3 as a professional expense.

⁂ In our view the refusal is unjustified. Such expenses are a common incident of even short-term engagements of employees, and, so far as our experience goes, are allowed. We cannot conceive that such a view would or could be applied to large industrial undertakings, where such expenses are frequently incurred, and there seems to be no ground for a different attitude where the nature of the business or practice makes them comparatively uncommon.

LETTERS, NOTES, ETC.

"Boy's Head Trapped"

Wing-Commander H. M. STANLEY TURNER, R.A.F. (ret.), writes from Abingdon: I enclose a newspaper cutting, reporting that an 18 months old child was "wedged" in the ornamental ironwork of Tower Bridge, a "clover-leaf" aperture. This sort of thing must have happened quite a number of times. I myself can remember three cases on Westminster Bridge, where there are similar apertures. To quote from the cutting of the Tower Bridge incident, "As it was found impossible to free the boy without cutting away the ironwork, hacksaws were obtained and part of the ornamentation, about three inches thick, was sawn away." I was walking over Westminster Bridge many years ago when I was a student, and saw a crowd on the Charing Cross side of the bridge. The same sort of accident had occurred. The police had smeared the boy's head with soft soap, and were vainly trying to get it out. It was quite easy to see what had happened. The boy had flexed his head, put it through the clover-leaf opening, and then extended it to look at the "penny steamers." I went to a rather hot and bothered policeman and offered to extract the boy, but was told that my help was not required, as they were filing the opening to make it bigger! So I passed on. Nearly two hours later, when I was returning, the crowd was still there and a man was working vigorously with a file. The boy was exhausted and whimpering feebly; and no wonder. I again spoke to the policeman, rather sarcastically; and thoroughly "fed-up" with the job, he said: "If you think you know so much about it, have a go yourself." I got through the crowd, pushed the boy's shoulders close up to the ironwork, flexed his head, and with a slight rotation extracted him with the greatest ease. As Lord Trenchard is doing so much to improve the education of the police, it might be useful if constables in the vicinity of the Tower and Westminster Bridges were given some elementary instruction in the mechanics of the after-coming head!

Occupation of Newly Built Houses

Dr. W. H. ANDERSON (Hindhead) writes: Many people nowadays enter on the occupation of newly built houses immediately on completion. Builders—and even architects, apparently—encourage this procedure, on the ground that modern methods of construction and the use of quick-drying materials render it quite safe. In view of the great attention now focused on what might well be termed the national scourge of rheumatism, the influence of "damp" as an important aetiological factor should surely receive every attention. The matter seems specially important in view of the great house-building campaign now being launched. It would be both interesting and helpful to have the opinion and experience of the profession on the subject. Hitherto I have been in the habit of advising patients to allow a sufficient period to elapse, depending, as to length, on the season of the year, before entering into occupation. I may have been unduly cautious.

Cosmetics

Dr. JOHN VEITCH (Cowdenbeath) writes: I fully agree with Dr. Alice Carleton about the use of cosmetics. "Those women on the whole who use 'good' cosmetics have much better-looking skins than those who do not." There is many a doctor who has to acknowledge that his patients will carry out a "beauty treatment" themselves with good effects when his own prescriptions turned out in the usual fashion have been tried for a day or so and produce little or no effect. In the treatment of allergic conditions in general practice more notice should be taken of the point mentioned in Dr. G. W. Bray's article—that of the use of cosmetics containing orris root. Nearly all cheap cosmetics contain orris root, and a great number of cases of allergy have their periodicity fixed by dances and the like functions attended by young folks. I may state that I have had quite a large number of such cases, and in one case in particular which defied almost every line of investigation the patient herself changed to the "Arden" preparations (which are orris-root free) with most gratifying results. Since that change she has had no recurrence of symptoms.

Anni Mirabiles

Dr. N. BEATTIE (Ilford) writes: A patient of mine thought that he would write down a résumé of his medical history to "save my time" and "make himself clear." This was the result.

My various complaints I have had during my life and the number of years I have suffered from them:

	Years
Irritation across my shoulders coming and disappearing at various periods—supposed to be shingles—I still have it	80
Very bad throats (sore) up to the age of 40—seldom after	40
Bilious attacks, very severe, up to the age of 50, seldom after	50
Constipation	75
Rheumatism of the muscles	65
Rheumatism and eczema, 3 attacks in	60
Strangulated hernia. Still about the same, no pain ...	55
Bladder or prostate gland, cystitis or kidney, worse in the last 6 or 7 years...	50
Dropsy attacks, 3 times—15, 20, and 2 years back ...	22
Colic—3 times at various periods	2
Mumps. Once only. Right side of neck. May, 1930. Not quite gone yet	2
Bronchitis and chill of the stomach—not often of late, and not for 3 years certainly	20
Last attack of eczema or nephritis 3 months back and now nearly gone, in...	60
Tender and cold feet and much run down and cold part of body, about	5
Acid stomach and much bile about...	20
About a dozen bad accidents, falls, and knocked downs	40
Many falls when a playboy at school.	
A weak stomach for about	6

Otherwise he is quite well and enjoying life!

By Air to Dublin

In last week's *Supplement* (p. 30) brief particulars were given of aeroplane and flying-boat services between England and Dublin for next week's Annual Meeting of the British Medical Association. Further information may be had from the West End office of Sir Henry Lunn Ltd., 2, Albany Courtyard, Piccadilly, London, W.1. Their Dublin agents, who can make any arrangements required from that end, are Hewett's Agency, D'Olier Street, Dublin.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 43.

British Medical Association

ONE HUNDRED AND FIRST ANNUAL MEETING, DUBLIN, 1933

President's Address

ON

THE WORK OF THE ASSOCIATION IN IRELAND

BY

T. GILLMAN MOORHEAD, M.D., P.R.C.P.I., M.R.I.A.
REGIUS PROFESSOR OF PHYSIC, TRINITY COLLEGE, DUBLIN

The history and influence of the British Medical Association in Ireland may be regarded as having commenced with the holding of the Annual Meeting in Dublin in 1867. Long before that date the need for organization of the profession in Ireland had been felt, and as early as 1839 the Irish Medical Association had been formed. In 1867 that association was strong and active, but as soon as our own Association had become national in its outlook the advantages offered to its members became apparent in every part of Ireland, and especially to the leaders of the profession. It is not my purpose to survey the history of the Association in Ireland in detail, but rather to point out the main directions in which its work has had an effect on the conditions of life of the medical profession and on the provision of health services for the community at large. Incidentally, the influence which Ireland has exerted on the policy and structure of the Association will become apparent.

THE FIRST MEETING IN IRELAND AND THE ESTABLISHMENT OF SCIENTIFIC SECTIONS

As early as 1858, when there was only one member of the Association resident in Ireland, an invitation to hold a meeting in this country was proffered. At that time the profession in England had just emerged from the struggle which had led to the passing through Parliament of the Medical Registration Bill. In that struggle there had been antagonism between the Irish and the English colleges, and so it was felt that the time was not opportune for a meeting outside Great Britain, more especially as it was anticipated that friction would be experienced in establishing a uniform standard of medical education throughout the different parts of the then United Kingdom. In 1867, however, the Dublin invitation was accepted with alacrity, and in August of that year some 400 members assembled within the halls of Dublin University. The Association then numbered about 3,000 members. The President was the great William Stokes, and many other distinguished men of science attended. The great importance of this meeting was emphasized in an article which appeared in the *Journal* twenty years subsequently. The Editor says:

"The brilliant eloquence of Simpson and Smith, the weighty wisdom of Stokes, the gentle persuasiveness of Acland, the large statesmanship of Rumsey, the high-minded counsels of Stewart, gave to the proceedings of the Association a weight and force which have never been surpassed. But from that date and from that year the Association entered upon that new career of vigorous prosperity in which it has never faltered, and which has brought it to its present stage of phenomenal success. For the first time great development was given to its scientific aspects. It multiplied its sections, it created new opportunities of scientific activity, and it invited to its aid the youngest and most earnest workers in all the departments of medical science. That impulse was never lost."

This is high but justifiable praise. The meeting was undoubtedly an important one, in the first place because it was the symbol of a union of hearts between members of the medical profession in Great Britain and Ireland, a union which, in spite of political changes and developments, has never since been broken and remains steadfast to-day. But it was important in many other ways. It may be stated definitely that this was the first meeting at which the scientific business occupied a foremost place. At former meetings there were scientific discussions, but the main work at those meetings was of a medico-political nature. Now for the first time the scientific business was divided into sections, four in number—medicine, surgery, physiology, and obstetrics. Since then increasing specialization has added more and more sections, and the end is not yet. Some may feel that the segregation of specialists in isolated groups is a mistake, but few will doubt that it is by specialization that advances in real knowledge are for the most part attained. The Association made a forward step when it recognized this fact in 1867.

ITS STIMULUS TO PUBLIC HEALTH SERVICES

Further, the meeting gave an enormous stimulus to public health services, services which, indeed, at that time were almost non-existent. Stokes, in his eloquent inaugural address, prophesied an immediate development of State medicine, a development which is still proceeding, but which years ago, largely as a result of this meeting, attained a magnitude far greater than was ever dreamt of by Stokes. Rumsey also, a Cheltenham doctor, already well known for his advocacy of preventive medicine, made a special plea for the establishment of sanitary medical officers and for the appointment of medical men to carry out many other public duties, such as are now accepted among the commonplace and routine services established in every civilized community.

This meeting, in fact, may be regarded as having initiated the great change which has taken place since that date in the functions of the doctor. In 1867 the thoughts of the doctor were not, as Bacon puts it, "raised above common cures," but from henceforward they were to be turned to the subject of prolonging and renewing the life of man. The general practitioner, "the salt of the earth," as Barrie called him, is still the backbone of the profession. He is the true and valued friend of many a household. He is the standard by which the entire profession is measured, for to the vast majority of the public he represents all that is connoted by the name doctor. But in 1867 he was isolated, and his duties

consisted solely in ministering to the relief of individual patients. Since then a revolution has taken place. No longer is he isolated, but, as a member of a great co-operative system, he performs a new and more effective function. The public hardly realizes how great has been the change, and the extent to which the doctor now enters into the general life of the community. There has developed a vast and complex service devoted to curative and preventive medicine, and to the preservation of the health of the community at large. In that service the general practitioner has many duties and many responsibilities undreamt of sixty years ago. A gratifying result of this system and of the way in which the general practitioner performs his duties is an all-round improvement in health, an increase in the expectation of life, and a greater enjoyment of life. For all this, as already stated, the Dublin meeting of 1867 may, to a large extent, be thanked, for it focused the attention of the profession and of the public upon urgent and vital needs. An early and almost immediate result was the establishment in the year 1870 of the diploma of State medicine in Dublin University. This was the first diploma of its kind in the British Commonwealth. As one looks to the future, one foresees a still greater extension of public medicine, and I for one look forward to a time when the simple laws of health will be more widely taught among, and known by, even the poorest inhabitants of our country, and when the State will compel everyone to obey those health laws.

ITS ATTITUDE TOWARDS MEDICAL EDUCATION

In addition to his advocacy of State medicine, Stokes in his address pleaded strongly for the scientific investigation of the action of drugs and other therapeutic measures, for apparently quackery was as rampant then as it is to-day. His plea is as necessary now as it was nearly seventy years ago. He insisted that if quackery in the profession was to be avoided it was essential that every one entering the profession should receive a wide, liberal education. One is happy to think that such an education is now our common property, yet I venture to assert that a greater grounding in inductive logic and in the laws of evidence would not be amiss. But the elimination of quackery ultimately depends on the education of the public. A country is said to get the Government that it deserves. On the whole, this country seems to me to get better medical services than it deserves, but it would get better still if it knew how to appreciate those services at their true value, and if it were better trained in distinguishing the false from the true. I would like to teach elementary logic in the higher classes of every school in the country, and in the same classes to give short courses in elementary physiology and in hygiene. Such a training might help to remove the credulity which still believes in magic, and which enables the charlatan to flourish.

Discussions also took place on medical education, Sir Dominic Corrigan devoting a lengthy paper to this subject, while Professor R. W. Smith, who delivered the address on surgery, also made many suggestions in the same connexion. It may be of interest to this meeting to know that while preparing this paper I had an opportunity of talking to three men who were present at the 1867 meeting, all later Presidents of the Royal College of Physicians of Ireland—the late Dr. Walter Smith, the late Sir Hawtrey Benson, and Sir John W. Moore. Sir Hawtrey Benson informed me that he well remembered Professor Smith's address and the profound impression which it created. To-day medical education is still under discussion. Finality has not been reached, and never will be reached. Our science and our art are progressive, and therefore it is essential that our educational curriculum should be varied from time to time in accordance with advancing knowledge. Some subjects which have lost their importance must be jettisoned, and others must be added. We will, however, never go wrong in our educational methods if we remember that our primary duty is to turn out well-trained medical practitioners who will be capable of advising the public wisely on all matters pertaining to health. The late Sir Andrew Clark once said:

> "As regards the question of medical education it seems to me to be in a gravely unsatisfactory condition, and to require the immediate and earnest attention of the profession. Jostled on the one side by quackery and on the other by science, it is failing in its true work of training students to be sound practitioners of the art of medicine. Medicine is an art, and its end is practice, and the worth or worthlessness of any system of education must be tried by the degree in which it helps or hinders this end."

This is almost as true to-day as when it was first stated.

A fundamental idea in our methods should be, in the words of Locke, "to give the student a relish for knowledge and a scientific outlook." Medicine should be taught as a whole. There has been too great a tendency of late to teach subjects in watertight compartments. My own view is that the General Medical Council is a sinner in this respect. It is not now possible to digress into a disquisition on the medical curriculum, but it will be agreed that a thorough knowledge of the early scientific subjects forms the basis of success as a medical practitioner. Realizing, however, that the mental capacity of the average human being is limited, I agree with those who urge that, as far as possible, these subjects should be taught from a vocational standpoint, and with a view to illustrating broad scientific principles. An accomplished teacher will know what to eliminate, and, while showing the direct bearing of his subject on the ultimate life-work of the student, should be able at the same time to indicate the paths of research and of inquiry which lie open to those who are eager and to those who are capable of delving deeper into the subject. As regards clinical medicine, I somewhat deplore the recommendations of the General Medical Council that special courses of instruction should be given on so many specialties. At any rate, these special courses should have their corrective in the out-patient department, where patients not already labelled will be seen by the student, and where the habits of rapid diagnosis and of decision, in short of resource, may be acquired. In the out-patient department the student will see patients in exactly the same way as he will see them after qualification, whereas the systematic study of, for example, tuberculosis or venereal disease in hospitals entirely devoted to the treatment of such cases presents the patient from quite a different angle. Specialized courses are all-important as a means of post-graduate instruction when a student has already acquired a general grasp of the principles of his profession. I have never wavered from my view that all that we can do in the course of the medical curriculum is to instil a broad knowledge of principles. If we succeed in doing that, a student placed on his own responsibility is capable of continuing his education and of acquiring all the details which he requires with extraordinary rapidity. If he does not acquire the principles, he will never throughout his life attain to a position higher than that of a qualified quack, at the mercy of every wind that blows, and the servant of the vendors of those many proprietary preparations whose alluring advertisements assault our breakfast table. As I read through the reports of that first Dublin meeting I realize how fully those who were then gathered together had grasped the true meaning of education, and how great an impetus they gave to the realization of their wishes.

ORATORY AT THE SECOND MEETING

Twelve years later, in 1879, the medical men of Cork, emboldened by the success of their Dublin brethren, took their courage in their hands and invited the Association to hold its meeting in that city. The members of the Association, which in 1867 only numbered 3,000, now totalled 7,810, and it was generally agreed that the rapid progress in the twelve years was due to the stimulus given by Dublin. Prior to 1867 the average number of new members per year had been thirty to forty. Since that meeting it had been from 400 to 500 and in 1879 it reached 600. About 600 members attended this meeting. At that time one-third of the profession in Ireland were members of the Association, the first Irish Branch of which had been started by Dr. MacNaughton Jones in Cork in 1874. Later, in 1877, a Branch was formed in Dublin through the energy of Dr. Duffey, and soon afterwards Branches were formed in Belfast and Galway.

I have been fortunate enough to obtain the written reminiscences of Professor Yelverton Pearson, who was present at the Cork meeting, and who took a share in the work of the Physiological Section. The president was Dr. Denis O'Connor, then nearly 80 years of age, professor of medicine in Queen's College, Cork, and for many years senior physician to the local hospital. Dr. O'Connor was a man of outstanding integrity, universally popular, and of high professional ability. He was a strong advocate of temperance, and devoted much of his opening address to the cause of temperance reform. The experiment of dividing the scientific business into sections which had been inaugurated at the Dublin meeting had proved a success, and now received further extension. There were in all six sections and two subsections. At each of these the president felt it incumbent upon him to deliver a lengthy address, a habit which led some years later to the editorial comment that "the scientific business of the Association threatened to be encumbered by orations which generally are erudite, sometimes interesting, and seldom directly useful." The Editor, however, did not have it altogether his own way in Cork, for I find that Dr. Martin of Portlaw moved a resolution to the effect "that the power of the Editor has increased, was increasing, and should be restrained." As one glances over the programme one is struck by the large number of papers on unassociated subjects. It was just about this time that the Association adopted the policy of having set subjects for discussion, and the experience of this meeting seems to have shown the advisability of this departure. Some of the speakers indeed seem to have been lengthy, and this again resulted in the editorial demand for a time limit both for papers and for subsequent speakers. I do not find that Cork men were to blame, for most of their papers were commendably short.

The most outstanding communication of the entire meeting was that delivered by William S. Savory, F.R.S., on "The Prevention of Blood Poisoning in the Practice of Surgery." The struggle for antiseptic surgery was then engaging all minds. Savory contended that Listerism was unnecessary, and that as good results could be obtained in surgery by the methods in vogue in pre-Listerian days. This paper was undoubtedly reactionary, but it does not seem to have caused any serious setback to the advancing of modern surgery. Read carefully, indeed, it reveals the germs of an aseptic system, for the author says that Listerism may be of use in ill-ventilated and dirty hospitals, but that it would be better to clean the hospitals than to invoke Listerism to combat such conditions.

The festivities were apparently prodigious. At the dinner there were eleven toasts exclusive of the toast of "The King," and twenty-eight speeches. We are not told at what hour the dinner terminated, but work was carried on with zest the following day.

PHARMACOLOGY AND THERAPEUTICS AT THE THIRD MEETING

Only five years were to elapse before the next Irish meeting, which was held in 1884 in Belfast, the capital of the province of Ulster, a city then of 210,000 inhabitants. Eight years previously the North of Ireland Branch of the Association had been formed with its headquarters in that city. The Association now numbered nearly 11,000 members, its increase during the previous year having been 1,040, and it was possessed of a revenue of about £20,000 a year. This meeting was notable as being the first at which a Book of the Town was prepared and given to every member attending. The late Professor James Lindsey kindly gave me his personal reminiscences. The Queen's College placed its buildings at the disposal of the Association. The president was Dr. James Cuming, professor of medicine in Queen's College and physician to the Royal Hospital, Belfast. He was at that time about fifty years of age, and was one of the best-loved and most erudite physicians of his day. In addition to possessing an extensive knowledge of his profession Dr. Cuming was a student of the classics and of modern European literature. In his scholarly and thoughtful address, entitled "The Control of Pathological Research by Clinical Observation," he urged the importance of co-operation between clinician and pathologist—a plea which has been repeated year after year since that date. His address foreshadowed much that is to be found in the writings, thirty years afterwards, of Sir James Mackenzie. Like Mackenzie, he recognized the value of the observation of patients over long periods of time.

An outstanding feature of the meeting, and one which attracted much attention, was the inauguration of a special Section of Pharmacology and Therapeutics. The establishment of this section was due to the insistence of Dr. (afterwards Sir) William Whitla of Belfast. Prior to this meeting pharmacology had been grouped with physiology and anatomy. The new section was presided over by Dr. T. J. Maclagan, famous for his work in connexion with the use of salicylates in acute rheumatism. The section was an active one. It proposed reform of the *British Pharmacopoeia*, and discussed, among other subjects, the newly introduced antipyretics, while at one of the meetings many members were, for the first time, made aware of the future promise of pharmacology by the exhibition of the action of various drugs on the freshly excised frog's heart. Pharmacology was then in its infancy, in fact, practically non-existent as a science. No papers require special notice, but as one reads them through one realizes how the profession of that day was attempting the solution of problems may of which still confront us. Others have long since been solved, such as the unity of tuberculosis, a conception which at that time was being appreciated dimly by a few. This was the time of the great opening up of the bacteriological sciences, and the medical and lay mind was only awakening to the fact that many diseases were due to germs.

SOCIAL CONDITIONS IN DUBLIN IN 1887

In 1887 the fourth Irish meeting was held in Dublin, just twenty years after the first. More than twenty years were to elapse before the fifth, and a further period of twenty-four years before this, the sixth, meeting. As before, the venue was Trinity College, but the annual dinner and some of the other functions were held in the comparatively new Royal University—a university which has since disappeared. The president was Dr. John Banks, regius professor of physic, and famous as the subject of a *Punch* cartoon. This meeting was a great success both from a scientific and from a social point of view, but it does not appear to have been marked by any outstanding change in the policy of the Association, nor did it have

any remarkable effect so far as the future was concerned. One notable change indeed was made in holding the scientific meetings of the Sections in the morning. Prior to this date the scientific business had been conducted in the afternoon hours. The change was a welcome one, and resulted in greater interest being taken in the scientific proceedings, and in more time being left for excursions and social entertainments.

The addresses at the various sections require little notice. W. T. Gairdner of Glasgow, in an exhaustive review, attempted to prove that medicine had advanced in the preceding hundred years, a task which admitted of considerable difficulty, but one which I venture to think might be faced with equanimity to-day. In the Therapeutics Section W. Whitla of Belfast, who, as already stated, had been responsible for the formation of the section, suggested the establishment of a Therapeutical Committee, a suggestion which was adopted. The most remarkable address was that delivered by the Rev. Samuel Haughton, M.D., S.F.T.C.D., on " Reflections on Death Rate, with Special Reference to Dublin and its Suburbs." He appealed eloquently that the Dublin slums should be wiped out, and stated that the high death rate of Dublin was largely due to the bad housing conditions. Much was done from 1887 onwards, but it was only two years ago, in 1931, that the slum problem was tackled on comprehensive lines. In that year the Civics Institute of Ireland brought the subject prominently before the public ; much interest was aroused, and a scheme was propounded. To-day the slums are vanishing, and new and more healthy dwellings are being provided for our workers. But if the problem is not to recur it will be essential that the workers should be taught how to live in their new dwellings. The provision of good houses is not enough. People must be taught how to live in those houses ; indeed, if necessary, coercion in relation to cleanliness of habit must be applied. In teaching the laws of health the medical profession can do much, both directly and indirectly. Many idle men and women could be taught to become social workers and to devote some of their superabundant leisure to regular work in the poorer quarters of our cities. Sympathetic workers of this sort would do much to establish mutual understanding among all the members of the community, and to improve generally the standard of life and the economic utilization of commodities. Dr. Haughton also advised the construction of a main drainage scheme for Dublin, and drew a vivid picture of the then unsanitary state of outlying suburbs. His words bore fruit. Dublin now possesses a main drainage scheme of which any city may be proud ; our city and our suburbs can claim to be as sanitary as any in the world. Our death rate since 1887 has fallen from 33.2 per 1,000 to 15.0 per 1,000 in 1930.

CRITICISM OF THE MEDICAL CURRICULUM IN 1909

The fifth meeting was held in 1909 in Belfast. In the twenty-five years which had intervened since the previous meeting in the Northern Capital both the city and the Association had progressed enormously. Belfast now boasted over 400,000 inhabitants, while the Association had over 20,000 members and an income of nearly £50,000 a year. The meeting was a big one, just under 1,500 names being registered before the end of the second day, and, as before, most of the business was conducted in the Queen's College buildings. But the Queen's College had within the last year attained to the status of an independent university, and through the presidential address of Sir William Whitla there breathed a spirit of confident optimism concerning the tasks which the new university must face. Whitla criticized the existing medical curriculum, and urged most strongly that more time should be given to the clinical studies. He stated that the new university intended to teach the preliminary sciences strictly in relation to practical medicine. The present pre-registration examination, whatever we may think of it, is foreshadowed in his remarks, for he asks that all students entering a medical school should be compelled at their matriculation to pass an examination in elementary chemistry and physics.

Of the other events of the meeting little need be said, for although pre-war, it is still too recent and too fresh in the minds of many of us to require comment. It was graced by the presence of the Lord Lieutenant of the day, Lord Aberdeen, and by Lady Aberdeen, who was then pressing forward vigorously her antituberculosis campaign throughout the country. As a tribute to her work in connexion with public health, Lady Aberdeen was elected an honorary member of the Association. She was the first lady on whom this distinction was conferred.

THE POOR LAW MEDICAL SERVICE IN IRELAND

In the period of forty-two years covered by these five meetings the science and art of medicine passed from mediaevalism into modernism. The British Medical Association played no unworthy part in this evolution, and Ireland can claim that largely as a result of those meetings it has been enabled to influence the policy and structure of this Association, and to contribute in no small measure to medical progress.

But the activities of the Association so far as Ireland is concerned were not confined to the holding of Annual Meetings. One of the most important chapters of its work is that which deals with its campaign in relation to the Poor Law medical service and workhouse system. In order that the present position of the public medical services may be understood, and in order that the campaign may be seen in its true perspective, it is necessary briefly to refer to the establishment of medical relief agencies in Ireland. Prior to the year 1765 practically no provision existed in rural Ireland for the medical relief of the sick poor. In that year the Irish Parliament passed an Act which granted permission to the grand juries in each county to establish a county infirmary, and under this Act within the next fifty years infirmaries and fever hospitals were established in almost every county. These were an undoubted boon, and many of them are in existence to-day ; but they left the main problem of medical attendance on the poor quite untouched, and as time went on it became apparent that further provision must be made for the aged and decrepit, and for the destitute sick. In 1838 the Poor Law Act was passed. This was modelled on the English Act of 1834, by which the system of workhouse relief was established. Under this Act nearly 160 workhouses were built, to each of which was attached an infirmary and a small fever hospital. Into the workhouses the poor and decrepit were admitted in large numbers, in spite of the unpopularity of the institutions, but the Act made no provision for attendance on the sick poor in their own homes, or for the treatment of minor ailments.

Experience soon showed that the workhouses were thoroughly unsatisfactory. Young and old, unemployed and unemployable, blind, and lunatics, were often herded together with the most demoralizing results. Public opinion was slowly aroused, and in pursuance of its policy of endeavouring to promote the physical welfare and health of the nation, the British Medical Association decided, in 1895, to appoint a special commissioner to inquire into the system ; Miss C. J. Wood, formerly lady superintendent of the Hospital for Sick Children, Great Ormond Street, was sent over, and after visiting several of the institutions made a detailed report. The medical officers attached to these institutions had no special grievance as far as salary or terms of appointment were

concerned, but the institutions themselves left much to be desired. They were almost without exception prison-like structures, gaunt outside and dreary within, ill furnished, and badly equipped as regards both comfort and even sanitation. At the time of Miss Wood's report the supply of trained nurses was totally inadequate—most of the nursing being done by the inmates themselves—and no provision whatever existed for night attendance.

In spite of unpopularity, however, the workhouse system continued to exist until the troubled times which preceded the signing of the Treaty of 1921. At the time when the Treaty was signed about 130 of these structures existed in the Saorstat, although many of them were no longer in use. Some of them had been burned, others had been occupied by troops. From the first, the provisional Local Government Board of Dail Eireann was determined on their complete abolition and on the wiping away of the system for which they stood. There is little doubt that Miss Wood's report was largely responsible for bringing home to thinking people in Ireland in the year 1895 the evils of the unions, and that the action of the British Medical Association in sending her over was a factor in their final abolition. It will be pointed out later that the place of these unions has now been taken by a well-organized system of county homes and county hospitals, and by a system of outdoor relief.

THE ASSOCIATION'S CAMPAIGN ON BEHALF OF DISPENSARY MEDICAL OFFICERS

The third great landmark in the provision of medical relief is the Medical Charities Act of 1851, under which the dispensary Poor Law system was established. By this Act the country was divided up into areas, 810 in number, each with a dispensary doctor. To these doctors was assigned the duty of the medical care of the poor in their area. Those who were seriously ill were to be visited in their own homes, and those less seriously ill were to be treated at out-patient clinics or dispensaries. The dispensary doctor was also to act as public vaccinator, registrar for his district, and sanitary officer. It has been aptly said that the English Poor Law medical service supplied the wants of the paupers, while in Ireland the same service supplied the wants of the poor. From the inauguration of this service the dispensary officers as a class have given ungrudgingly of their best, so that from the point of view of those served it may be stated that no better medical service exists in the entire world. Rumsey, speaking at the Dublin meeting in 1867, bore testimony to this when he said:

> "And thus it is that from the Stygian realms of destitution and disease uprises the corrective agency empowered to vindicate the primal laws of public order and public health. In no country does this elevation of object appear to be so easy of execution and so promising of success as in Ireland, the dispensary system of which is probably the best in Europe."

It was, however, far different with the medical officers concerned. The service had not been in existence long before it was realized that dispensary officers suffered under many grievances. It is unnecessary now to refer to these in detail, but it may be stated briefly that the salaries offered were entirely inadequate, the average being about £100 a year. The work required was far in excess of the powers of a single individual. The distances to be covered in those pre-motor days proved most exhausting. No arrangement existed for promotion; there were no pension rights, and no provision for an annual holiday. As early as the year 1882 some of these grievances had been recognized, and as a result Mr. Herbert Gladstone introduced a Bill into the House of Commons dealing with superannuation. The Bill was based on the report of a select committee of the House, and had the assent of the Local Government Board, but it failed to become law.

In 1891 attention was again called to these grievances, and it was at this date that the British Medical Association came into the field. From that time onwards the Association has never ceased to exert its efforts on behalf of the Poor Law medical doctors in Ireland. In this campaign the Association co-operated with the Irish Medical Association, an association which was founded in the year 1839 and incorporated in 1882, and which deserves a large share of the credit for what has been accomplished. In July, 1891, a letter appeared in the *Journal* from a dispensary medical officer. This was followed by other letters, and at once the subject began to attract general attention. As a result, in October, 1891, Mr. Ernest Hart, at that time Editor of the *Journal*, brought before the Parliamentary Bills Committee a memorandum which he had prepared in conjunction with Dr. (afterwards Sir William) Thomson of the Richmond Hospital. Subsequently a questionary was issued to every Poor Law medical officer in Ireland. Dr. Thomson analysed the replies, and published the results of his analysis, and also suggestions for the remedying of grievances, in the *Journal*. Later a conference was held in Dublin, at which Mr. Hart attended, and also Sir W. Stokes, at that time chairman of the Dublin Branch. Not long afterwards deputations were arranged to the Chief Secretary, Mr. Jackson, and later to his successor, Mr. John Morley. Unsympathetic replies were received, but, nothing daunted, the British Medical Association and other bodies concerned continued to press forward their schemes for reform. Gradually their efforts produced an effect on the officials of the Local Government Board. In 1898 a new Act was passed, which transferred the right of election from the local guardians of each dispensary district to the district councils. As far as this change was concerned the medical officers gained little, if anything, but the new Local Government Board soon issued an instruction to the district councils providing that every medical officer of a dispensary district should be allowed an annual vacation not exceeding four weeks, and requiring the guardians to pay reasonable remuneration to the substitute.

This was the first real success which the movement had gained, but much remained to be done. The *Journal* continued to lend its columns and its assistance to the dispensary medical officers, and in 1903 it determined to make a further effort on a big scale. In that year Surgeon General Evatt, well known for his efforts on behalf of the Army Medical Services, retired from active work, and at the request of the British Medical Association he visited Ireland with the object of examining into, and reporting on, the conditions of the Poor Law medical service. In the autumn of that year he issued an elaborate report, in which he reviewed the working of the Poor Law system as a whole. He endorsed the numerous complaints that had been made, and urged the medical officers to take bolder steps to remedy their grievances. This report produced a profound impression, and greatly strengthened the hands of those who were trying to influence the officials of the Local Government Board. A campaign of boycott was now inaugurated, under which certain dispensary districts when they fell vacant were left without a doctor—other than a locumtenent—owing to the pressure brought by the British Medical Association and the Irish Medical Association upon all of their members to refuse to apply for appointments which did not come up to a certain salary. A further step was the appointment in 1905 of an Irish Committee of the British Medical Association, one of whose special functions henceforward was to inquire into and, as far as possible, deal with complaints made by dispensary doctors. This was followed in 1914

by the establishment of an Irish office with a full-time secretary. This office has been invaluable in looking after the interests of Poor Law medical officers, and indeed all medical interests in the country. Through its efforts, and aided by the recommendations of a Viceregal Commission held in 1906, grievances have been removed one by one.

By the action of the Local Government Board the scales of salaries have been gradually raised, and a system of promotion on a moderate scale has been introduced. It was not, however, until the year 1919 that the principle of compulsory superannuation and of pensioning was made law (Local Government (Ireland) Act, 1919). Finally, by the Local Authorities (Officers and Employees) Act of 1926 a change of great importance in the method of election of dispensary doctors was brought about. Under this Act the appointment of dispensary medical officers was taken out of the hands of the county authorities and put in the hands of special commissioners. The qualifications of a candidate are now carefully considered by experts, and there is no doubt that under this scheme favouritism and jobbery have been done away with, and that, at any rate until quite recently, the dispensary medical officers have been appointed on an equitable basis. As already stated, there has never been any doubt as to the value of the system to those served. As far as the medical men are concerned I can best summarize the advance that has been made by quoting from an article which appeared in the *Supplement* to the *Medical Press and Circular* in August, 1931:

"Dispensary doctors of the present day hardly realize what a reform has taken place in regard to their conditions of employment during the present century. It is only a few years since salaries were stationary, and retiring allowances were a matter of grace. These days are gone, and a young man now entering the public medical service in the Irish Free State can look forward to a life of useful and not uninteresting work, and not unfair remuneration. The younger men hardly recognize what a debt they owe to their immediate predecessors, working through the medium of the medical associations."

THE NATIONAL HEALTH INSURANCE ACT

In connexion with the National Insurance Act Irish doctors were active from the very moment that the text of the Bill was issued. Almost immediately the Irish Committee of the British Medical Association took into consideration the proposals with regard to the application of the scheme to Ireland. The Irish Medical Association at the same time showed much energy, and was mainly responsible for the summoning of a mass meeting which was held in the Antient Concert Room, Dublin, on June 30th, 1911. At this meeting it was decided:

"That the Committee of Council of the Irish Medical Association and the Irish Committee of the British Medical Association be appointed an Executive Committee to look after the interests of the medical profession in Ireland in connexion with the National Insurance Bill."

From an early date it became apparent that the interests of the Irish profession and those of the English profession were widely dissimilar, inasmuch as the Irish Parliamentary party recommended that Ireland should be excluded from medical benefit. This recommendation was adopted. Up to the present Saorstat Eireann has not included medical benefits, and only in 1931 were these benefits extended to Northern Ireland. In spite of this exclusion, the profession in Ireland stood shoulder to shoulder with the profession in England in the fight of the latter for fair conditions. At the very first meeting in Dublin it was decided to circularize Irish medical men urging them not to undertake medical duties in connexion with the Act in England until the British Medical Association was satisfied with the terms offered. Many Irish doctors also contributed at this time to the guarantee fund which was raised for the purpose of indemnifying those who might suffer pecuniary loss in their determination not to work the Bill. The victory which the Association won in England is now a matter of history. In Ireland the main struggle was to secure sufficient remuneration for sickness certification. This struggle lasted for some years, and was finally settled by the good offices of Dr. Addison, Dr. Macdonald, Chairman of the Council, and Dr. Cox, Secretary of the British Medical Association, who arranged an interview between Mr. Roberts, M.P., and representatives of the Irish medical profession in 1915. It was then agreed that the annual sum of £90,000 should be paid for certification in Ireland, and that the right of certification under the Act should be granted to all medical men in the country with an arranged capitation payment. After that date for many years certification was carried on under conditions satisfactory to all concerned.

OTHER ACTIVITIES OF THE ASSOCIATION IN IRELAND

The other activities of the Association in Ireland are too numerous to be referred to in detail; indeed, only a few of them can even be mentioned. But it may be stated that there has been hardly a single matter affecting the interests and welfare of the profession, and scarcely a matter of importance in connexion with public health, that has not received from time to time the most careful consideration from the Irish Branches and Divisions. Since the appointment of the Irish Committee in 1905 the work of the Association has been systematized, while the establishment of an Irish office, with a full-time secretary, has added enormously to the influence which the Association has been able to wield.

As early as 1888 the Association showed its interest in medical teaching by advising the appointment of professors of pathology in all the Irish medical schools. Ten years later it showed a similar interest in bacteriology, and pressed for the establishment of a central bacteriological institute. In 1890 it joined with the Irish Medical Schools' and Graduates' Association in an emphatic protest against the exclusion of the holders of Irish degrees and diplomas from hospital appointments in England.

In the campaign on behalf of the personnel of the Army Medical Services the Irish members took a leading part, and there is little doubt that the influence they were able to bring to bear on newly qualified Irish doctors in restraining them from entering the Services until satisfactory conditions were conceded did much to bring about the necessary reforms. During the war an Irish Emergency Committee was organized, the main purpose of which was to obtain medical recruits for the Army, a work in which it proved most successful. From time to time representations were made to suitable quarters on such matters as the medical inspection of school children, the registration of midwives, the payment of fees to medical witnesses, the establishment of grades of salaries for prison doctors, the medical inspection of dairies, and many others. Lastly, as will be pointed out immediately, the Irish Medical Committee in 1919 made representations regarding the establishment of a Ministry of Health for Ireland. These representations were the first step towards that great development of the public health services which was initiated after the signing of the Treaty of 1921.

But this catalogue grows wearisome, and takes no cognizance of those intangible benefits which flow from that mutual good will and friendliness which professional co-operation induces. I have failed in my task if my hearers do not realize that the contributions of each country to the other in their combined work for the conquest of disease have been spiritual as well as material. The medical profession of the entire world is marching

forward, inspired with a love of service and aiming at such perfection of our science and of our art as will in the end wipe away all sickness. In that onward march the professions of these two islands, mutually aiding one another, have taken a foremost and sometimes a leading place.

THE IRISH MEDICAL ASSOCIATION AND AFFILIATION

In most of its activities the British Medical Association has worked in conjunction with the Irish Medical Association. In June of this year the Irish Medical Association numbered just under 400 and the members of the British Medical Association resident in Ireland were nearly 11,000. Again and again it has been felt that in a small country like Ireland a single representative association would have greater weight in promoting the interests of the profession than two associations, which, though friendly to one another, are to some extent competitive, and at any rate overlap in their activities. Various attempts at amalgamation have been made. The last of these was in 1919, when an influential committee was appointed to explore the question. After some months this committee reported in favour of amalgamation, and in favour of the formation of a single association affiliated to the British Medical Association. The amalgamation was, however, intended to apply to the whole of Ireland, but before the scheme could be discussed in detail political partition in Ireland had been brought about. As a result the matter was allowed to drop, but it appears to me that the time is now ripe for a reopening of the question.

From a scientific point of view the interests of doctors are probably identical everywhere, but conditions of service vary in accordance with the custom of the people and in accordance with legislative enactments. Since the passage of the Insurance Act the conditions of practice in England and in Ireland have been dissimilar. Of necessity much of the work of the Association deals with insurance problems which in no way interest or affect the Irish doctor. In consequence, many of the Irish profession are slow to join an Association whose work from their point of view is so largely devoted to matters with which they have no concern. An affiliation on broad lines would, I feel certain, prove of benefit to the Association as a whole, and to the Irish profession. I feel that such an Association would be widely supported, and would be genuinely representative. It may be added that the establishment in 1926 of a separate *Medical Register* for the Irish Free State has to some extent already organized our entire medical profession.

PUBLIC HEALTH SERVICES IN THE IRISH FREE STATE

I will conclude this paper by a short reference to the recent development of public health services in the Saorstat, a development which had its beginning in representations made to the Government by the Irish Medical Committee. Since 1887, the date of the last Dublin meeting, our public health administration has, as in other European countries, developed into a regular network of associated and well-co-ordinated medical services. The main advance as far as Ireland is concerned has been in the last ten years. Dr. Stephenson, late Chief Medical Adviser, Department of Local Government and Public Health, Dublin, in a recent pamphlet, says: "Public health reform has advanced rapidly in the Free State, perhaps more so than in any other country, yet the health schemes are laid on solid foundations, capable of expansion on definite and systematic lines." For this advance the forward-looking men in the Department of Local Government and Public Health are mainly responsible, but the primary stimulus is due to our Irish secretary. In 1919 Dr. Hennessy read an important paper before the Section of State Medicine of the Royal Academy of Medicine in Ireland. This paper was entitled "Ireland and a Ministry of Health," and foreshadowed a comprehensive scheme of public health services with central control.

At that date public health services occupied much attention following the establishment of a Ministry of Health in Great Britain, and in consequence the Chief Secretary was readily induced to receive a deputation of medical men, who urged the necessity of establishing a Ministry of Health suitably adapted to Irish needs. The Government, however, could not at that time be induced to establish such a Ministry. As an alternative it set up a Public Health Council. This council issued an important report in 1920, in which it recommended:

(*a*) The co-ordination as far as possible of the general central control of all the services relating to, or ancillary to, health, and the establishment of a Ministry of Health.
(*b*) The reorganization of local health administration with a view to placing it as far as possible on a county basis.
(*c*) Reform of the Poor Law medical services.

This report appeared at a time when Ireland was in the throes of a political struggle, and when medical and other public services were greatly disorganized. In consequence, no governmental action followed its issue, and before long the Council ceased to function, and was finally dissolved by the Local Government Act of 1925.

Nevertheless, this report formed the basis for the future development of the Irish Services. After the Treaty was signed, and the period of civil strife which followed, the Executive Council of Saorstat Eireann adopted many of its recommendations. By Acts passed in 1924 and 1925 all the medical services were concentrated in one department of the Local Government Board, with the result that enormous simplification and co-ordination of public health work has been brought about. As already stated, the workhouse system was swept away in the early revolutionary years. In its place there has now been established in each county in Ireland a well-equipped county hospital with a full-time medical officer and suitable assistants, and one or more county homes. The homes house those aged and infirm who, without friends or relatives to support them, require the succour of the State. In each county hospital the main surgical work of the county is carried out. When these hospitals were first established it was feared that the city hospitals would lose many country cases and that their teaching capacity would in consequence be impaired. Time has shown, however, that this fear was groundless. The county hospitals indeed deal with the great bulk of what I may call routine surgical work, but there is still an abundant flow of difficult cases from all parts of the country to the teaching institutions.

In each country a full-time medical officer of health has been appointed, who is responsible for all matters of public health in his county. To him the dispensary medical officers report regarding the health of their district. Specialist services have not been neglected. Ophthalmic surgeons visit the main towns according to a definite plan. School inspection work and schemes for child welfare have also been developed, while in each county schemes for the treatment of venereal disease and for tuberculosis, with domiciliary visitation, have been adopted.

It is unnecessary to go into further details, but it is clear that, as far as Ireland is concerned, a great step forward has been taken in the last ten years in connexion with public health. Only a person resident in the country can realize how great the advance has been, and how great an improvement the new order is compared with the old. The Department of Local Government and Public Health, in pursuing its policy, has wisely realized

that education of the public must precede reform, and so thorough have been its methods of instruction that practically every forward step has been made with the concurrence and good will of the county councils, who are responsible, and of the people generally.

Ireland has still far to go, but it is advancing resolutely. Before long it will be in the very forefront of civilized races so far as the care of its people is concerned. In its future struggle this meeting of the British Medical Association will prove a stimulus and an aid. It comes at the beginning of an epoch in our development. Perfection is not attainable, for as the goal is approached new problems ever arise ; but Ireland is travelling hopefully, and to do that is better than to arrive. Its desire is not merely for the physical needs of its people, but for their spiritual development.

> " I looked: aside the dust cloud rolled,
> The Warrior seemed the Builder too,
> Upspringing from the ruined Old,
> I saw the New! "

THE FAMILY PHYSICIAN'S ROLE IN THE PREVENTION OF MENTAL DISORDER AND DEFECT*

BY

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The shock incidental to a mental attack in a member of a family is indeed a big one, and especially so if it happens to be the first of its kind that has occurred. As a result the physician has to deal with a difficult situation in the family, apart from the anxiety and worry associated with the treatment and care of the patient suffering from the psychosis. I should like here to record my admiration for the skill and tact with which the family physician, who in many cases has little experience of mental disorder, will almost invariably meet the situation, with credit to his profession and with benefit to his patient.

For the partial or complete prevention of any disorder it is not essential that the exact cause of such disorder should be definitely known ; which is fortunate in this case, insomuch as little could be accomplished towards the object in view. In searching, however, through the causes, either principal or contributory, usually considered to be the precursors of mental disease, one cannot help being struck by the frequency with which certain factors predominate, factors which should often be preventable, and it is in this direction that I hope the discussion may be of benefit to all of us.

NEUROPATHIC INHERITANCE

One first has to consider the neuropathic inheritance—a feature that can be ascertained in about 75 per cent. of one's cases. This fact has a very evil effect, because there would appear to be a fixed idea among the public that anything of a hereditary nature is almost always incurable. I would suggest, however, that too much fear has been felt with regard to the neuropathic inheritance, and that it should be regarded in much the same light as that inheritance which was so long considered to be the cause of tuberculosis, a disease which in many respects resembles mental trouble and one with which it is often associated. But although the neuropathic inheritance may not now hold its one-time importance, yet it cannot be ignored. Its frequent presence demands attention and investigation if progress towards the prevention of mental disorder is to take place.

The late Sir Frederick Mott gave much attention and thought to this subject, and has recorded his opinion on many occasions. The amount and the nature of the work he accomplished must command one's admiration. In short, he endeavoured to prove that a mental illness in a parent was liable to be followed by a more serious mental illness in the next generation, and that it would be apt to occur at an earlier age. In other words, a periodic psychosis is liable to be followed in the succeeding generation by dementia praecox, and by mental defect in the next one. He noticed a tendency for insanity not to proceed beyond three generations, as there was either a regression to the normal type or else the stock died out, and that the latter frequently occurred by the malady manifesting itself as imbecility or adolescent insanity. He considered this to be one of Nature's methods for ending or mending a degenerate stock.

These conclusions have been criticized by Paterson, who has gone over some 4,000 cases. He finds that the existence of the law of anticipation in mental diseases is not proven, and that Mott's results were obtained by the manner in which the material was collected. There was always the difficulty when working under Mott's hypothesis of explaining those cases of dementia praecox which have occurred without a neuropathic inheritance. Mott himself considered them to be examples of a " throwback " in heredity ; but this never appeared to be wholly satisfying, and, further, the frequency with which these examples occur helps to negative the supposition.

SIGNIFICANCE OF A SUBTHYROIDAL STATE

Some years ago I suggested that the nature of the psychopathic inheritance might mainly be one of a deficiency in the thyroidal secretion, and that this deficiency might also be concerned in the cause of certain other diseases which appear to have a hereditary tendency, including tuberculosis and malignant disease. I have come to regard the presence of either of these diseases in a family history as being of at least equal significance as a mental illness. There would seem to be some grounds for believing that the initial trouble in each of them is a subthyroidal state, and that a second and exciting cause determines which disease is to develop. Granted that this were true, there would be at once explained the 25 per cent. of cases in which, no matter how one searches throughout the family history, it is not possible to get a definite example of mental illness. It would also account for the not infrequent development of an example of dementia praecox in a family in which no previous mental attacks have been experienced, on other grounds than that of a " throwback." The presence of a low thyroidal secretion, with all its ill effects upon the rest of the endocrine system, would in the course of a couple of generations be just the type of condition necessary for the production of a disease characterized by a marked tendency to an early degeneration of the cortical cells. Myxoedema, of course, is known to be capable of transmission in a hereditary manner, especially through the maternal side of the family.

There can be no question about the exceeding frequency with which subthyroidal symptoms are met with in a mental hospital. The number of these symptoms is large, and they are widely known, so I do not propose to dwell upon them here. One has, however, to mention with gratitude the name of McCarrison, whose work upon the thyroid gland is of an inspiring nature.

It is a matter for regret that the valuable eyebrow sign first described by Hertoghe is no longer available in many of the younger women of to-day, owing to the development of the habit of eyebrow-plucking and its replacement by a thin black line. I have sometimes thought that the idea of this must have originated in the brain of some keen beauty expert, who did not fail to

* Read in opening a discussion in the Section of Neurology and Psychological Medicine at the Annual Meeting of the British Medical Association, Dublin, 1933.

recognize the tendency for the irregular and early disappearance of the hair in this region—a somewhat difficult feature for his art to overcome—and so he called up the aid of Dame Fashion to decree its complete removal.

Kojima has recorded his findings after the examination of the thyroid gland in 100 patients who died in Claybury Mental Hospital. His observations demonstrated a very marked variation in the weights of the thyroid gland, which could not really be accounted for except on the idea that it was in some way related to insanity. Sir E. Sharpey-Schafer has stated that the principal autacoid of the thyroid is the most powerful excitant of metabolic processes known. I regard thyroid extract as being the most potent preparation with which a physician can treat a case of mental disorder, and I believe that in many cases, especially in those showing subthyroidal symptoms, the administration of it in suitable dosage over prolonged periods will prevent an attack of psychosis. For this reason I believe that every symptom of subthyroidism should be regarded with concern as to the mental future of the patient.

Norman Phillips gives the records of 291 patients examined by Brissard at the Bel-Air Asylum, Geneva; 106 were found to be goitrous, representing 36 per cent. of both sexes. This compared with a rate of 5 per cent. in other statistics in the same canton. Further, he noted that in seventy-one of these 106 cases dementia praecox was the entity present, and that eighteen were congenitally weak-minded. Out of a total number of 149 cases of dementia praecox, seventy-one were goitrous, amounting to 49 per cent., and out of a total number of thirty-seven cases of congenital idiocy eighteen, representing 48 per cent., were goitrous. Phillips also records his own investigations, and has noted the frequency with which goitre is associated with psychosis. In a mental hospital receiving no cases of idiocy one patient in every eight had some thyroid enlargement.

I think, at any rate, that we have enough evidence to justify the belief that the thyroid gland plays a very large part in the production of mental disease and defect, and therefore that every sign of a deficiency in its secretion should be treated early and with persistence. Further, patients suffering from goitre, even though of the simple variety, must be regarded with suspicion concerning their future mental history, and every effort should be made to cure them of this condition, which cannot be anything but a dangerous one. In the case of marriage and subsequent issue, this issue will be particularly liable to mental illness. I have noted for many years the frequency with which patients suffering from mental trouble can be found to have mothers or maternal aunts who suffer from goitre. Indeed, the visits of relatives have often suggested to me, by their subthyroidal appearance, the advisability of placing the patient on thyroid treatment, when often the patient did not present any obvious subthyroidal symptom.

Chronic Sepsis as a Factor in Mental Illness

It would not be reasonable to expect that every case of mental illness treated by thyroid should respond in a beneficial manner, for the causation of this illness is seldom a single one. Many other factors, both psychogenic and physiogenic, must be considered. In connexion with the latter, the part played by chronic sepsis has for the past few years been a matter of much discussion and dissension. All the organs and tissues of the body have at one time or other been investigated, with many positive results.

Recently, however, the question of sinusitis as a cause of mental disorder has been examined with great thoroughness at the Birmingham mental hospitals under the direction of Graves. He has published the results of 1,000 cases that have been examined by the Watson-Williams technique of sinus puncture and wash-out, with the result that 818 were found to show evidence of nasal sinus infection. Of these 818 cases 304 had sphenoidal infection, 424 had ethmoidal sinus infection, and 631 antral infection. The treatment of these by sinus wash-out and drainage was followed by a marked improvement in many cases that had been considered hopeless.

The type of infection most likely to produce mental symptoms is of a chronic form, and is termed "latent" because of the few indications of its existence. Watson-Williams states that transillumination is most unreliable for its diagnosis, and that the only certain criterion of sinus infection consists in introducing a cannula into each sinus and extracting therefrom a sample of its contents for bacteriological examination. This procedure is obviously outside the scope of the family physician or alienist, but from the evidence brought forward it would appear to be advisable for such an examination to be made in many cases. Although I have no experience of sinusitis as being a cause of mental illness, yet I believe that chronic sepsis is very commonly asscciated with it, and indeed for a long time I have regarded it as one of its causes. One sees many brilliant results follow the removal of septic infections of a chronic nature, and sometimes the surprising point about them is the small amount of infection that would appear to be present.

It is no uncommon experience in a mental hospital for an apparently hopeless dement to get at least a temporary return of the intellectual faculties following the development of an acute inflammatory condition, and this would appear to be specially liable to happen when such inflammation proceeds to the formation of an abscess. It is of further help towards the recovery of reason if the abscess should not be evacuated at once—a point that makes one think that the production of a high standard of immunity is necessary before improvement of the mental symptoms can take place. This feature would seem to provide evidence of the presence of another and more chronic septic infection in the system, which the high degree of immunity is able to overcome, at any rate for a time. I have known, however, such an occurrence to bring about the complete and lasting recovery of a few patients.

Chronic sepsis in any portion of the body, and especially that located in the sinuses of the nasal passages, would appear to be so common in mental illness as almost to make it more than suspicious that it may be an essential factor for the production of disease. As Pickworth states:

> "The prevailing tendency to ascribe all mental disorder to hereditary transmission must be challenged with new facts. Congenital mental deficiency is attributed in some cases to birth injuries or infectious diseases such as syphilis in the mother; similarly the part played by naso-oral sepsis in the mother deserves study and recognition. It has long been a contention that much of the ignorance and stupidity of the populace is due to unhygienic surroundings and disease in the parents; such tables as are already available show that the figures for hereditary mental disorder can be paralleled by figures for nasopharyngeal sepsis heredity."

Thus there are two important factors which would appear to me to be most liable, in combination, to produce a mental illness. First, a deficiency in the nature of a subthyroidal condition of the system; and secondly, the presence of a focus of septic infection essentially of a chronic nature. These conditions would seem to be preventable, at any rate to a considerable extent, but it is to the family physician we must look with hope for their amelioration or complete removal.

Critical Age Periods

In the presence of conditions such as these it is not surprising that many other factors, in themselves perhaps not seemingly potent, and which people more fortunately

situated are able to withstand, have a contributory and possibly even an exciting influence in the causation of mental illness. First, there are the critical age periods—namely, adolescence, the climacteric, and senescence. Robertson, in his Maudsley Lecture, gave most valuable data concerning the age-period liability to mental illness, and, contrary to the opinion usually held, he has shown that the liability to a psychosis increases with age. In his words:

"The tendency to develop insanity first shows itself between 15 and 19, but it becomes much more pronounced between 20 and 24. This is followed by a steady rise year after year till the age of 50 is reached. There is then a short period of decline, after which an extremely rapid rise occurs in old age."

To my mind the fact seems somewhat significant that mental illness should be of such rarity in those under 15 years of age, for would it not point to an absence of any marked inherent defect in the nervous tissue of the child? The intrusion of the internal secretion from the sexual glands and its disturbing effect upon the other internal secretions have been held responsible by many for the onset of mental illness in the adolescent. Regressive changes in the same glands have also been widely accepted as the cause.

Again, the changes in the social status at this age period, the necessity for adjusting himself to the ordinary difficulties of life, without the same amount of protection hitherto given to him by the parent, the sex problems, and the ordinary sex attractions incidental to youth—all these must have some bearing.

There would appear, however, to be little attention paid to the influence of the very difficult period of school life. The advance of education and the necessity for receiving and retaining in one's memory a large amount of facts and figures which may (or may not) be useful in a later period imposes one of the most difficult strains to be experienced in life. When it is remembered that at adolescence the brain is immature, and that, although mental illness may have been absent up to the school age, yet it is likely that minor physical disturbances have been present for many years, and perhaps even since birth, it will not seem a matter for surprise that psychoses occur frequently at this period.

I would suggest that there is a danger in what one might term "the excessive education of the unfit," and I would include within it backward children and those who show any marked evidence of a nervous condition associated with a predisposition to mental illness, even though some of them may be of the brilliant type. They should hasten slowly during this period, and so remove any strain upon the intellect. How often does not one see a hitherto brilliant mind become less than mediocre, and make its possessor incapable of self-support! I have often thought that if such young people had been removed early from school, and put to work upon the land, many of them might have become useful citizens of the State.

With regard to the later critical periods of the climacteric and senescence, I would lay stress upon the importance of the recognition and early treatment of nervous symptoms, especially want of sleep associated with prolonged worry. Insomnia at times is most difficult to treat, but if not allowed to develop to a marked extent it will, as a rule, respond to mild sedatives in the early stages. The longer one leaves the condition untreated the more difficult it will become.

OTHER CONTRIBUTORY FACTORS

There are so many causes of worry and strain that it would seem impossible for the family physician to protect his patients from their evil effect. There is, however, one particular strain against which he can safeguard them, and one that is no uncommon exciting cause of mental illness. I refer to the nursing of the seriously ill person by a devoted relative, and especially if the illness should be a mental one. Here you have the predisposition to the illness, the undue anxiety concerning the patient, the want of sleep, and irregular meals which are often an accompaniment to the long hours of watchful nursing, all of which conditions, when taken together, will be very liable to precipitate an attack of psychosis.

We cannot do away with the influence of senescence. Robertson, however, has stated that much can be done "by careful living during the middle period of life," which he regarded as the best insurance against senile insanity. Senility is the greatest insanity-producing period of life, so that any measures that may tend to lessen liability to mental illness at this period are worthy of particular attention. In this and other critical periods I would emphasize the importance of rest, and preach the gospel of fatness, which, in the earlier periods of life at any rate, is nearly always accompanied by mental fitness.

Alcoholism and syphilis are, of course, well-known exciting causes of mental trouble. According to statistics the former would appear to be a diminishing factor, and one may hope that with the advance of modern anti-syphilitic treatment the influence of syphilis in mental disease production will disappear.

I have known excessive smoking to be the only apparent exciting cause in several cases, and, indeed, I regard it as being a fairly common contributory cause of mental illness. Its effects are not so obvious as those of alcohol, for alcohol, if taken in sufficient quantities, will soon terminate the desire for its consumption by means of the production of an acute psychosis; but in the case of excessive smoking the effects are insidious, with the production of gastric disturbances, loss of appetite, and a generally lowered physical condition, which make a mental attack likely to occur with little other provocation. One contemplates with some alarm the future of a generation, yet unborn, the mothers of which are harassed with a desire for slimness and excessive smoking.

The evil effects of gastric disturbances and constipation are well known, even to the public. They are such frequent phenomena in mental disease, especially in melancholia, as almost to be considered part and parcel of it. I have known some patients make a complete recovery within a few days following the administration of an enema.

Sometimes, when getting the previous history of a patient suffering from a psychosis, there is a reference to a "chill" or febrile attack perhaps a month before the onset. This has occurred so frequently that as a rule I now search for it. The attack is generally regarded as having been an influenzal one, and most likely it was so, but the point about nearly all these attacks is that they are of an ambulatory type: little or no treatment is taken for them, as a doctor's help is rarely sought for. In spite of the slight symptoms, however, they may be of the most serious importance, as representing the onset of an attack of encephalitis lethargica, or act as the precursor to a psychosis some months later.

Robertson has given some statistics with regard to marriage and its potential effects on the incidence of mental disease. Nothing but good can be said of marriage, for in the married this incidence is low, but slightly higher among women, as a result of the risk of child-bearing. The loss of a husband or wife increases to a marked extent the liability, and, indeed, up to 55 years of age the prevalence of it is almost double that among married men and women. In the case of single men and women between 35 and 55 years of age it is nearly three times as high as in the married. Robertson, however, points out that a process of selection has been at work among the married, who may be regarded as a picked lot. Both husband and wife have at least selected one another from

all the others, and, on the whole, for good reasons. The average health of the single is probably lower than that of the married, and may in itself be the reason for remaining single. The expectation of life for a married man 25 years of age is nearly five years more than for a bachelor of the same age.

It may sometimes happen that the family physician is consulted with respect to the marriage of a patient who has had a psychosis. As a general rule it should be regarded as a most unwise adventure, for a psychosis may be of the periodic variety, known as the manic-depressive psychosis, in which attacks will occur throughout life with complete remissions between. It is these very remissions which make marriage a great peril in the neuropathic. An isolated attack may occur, especially after a great shock, and will not repeat itself even after many years. In a person who has had such an attack and is in obviously good physical health, with no definite stigmata of degeneration, such as cranial anomalies, deformities of the pinna and palate, and marked hyperextensibility of the ligaments, it would seem unnecessarily hard to refuse sanction.

Trauma would appear to be an almost negligible cause of mental disease, so rare is its occurrence. It is more likely to be followed by a neurosis, and even in this respect its liability is grossly exaggerated by the public. The experiences of the war proved the extraordinary resistance of the brain to external injury ; and, indeed, the highly skilled art of the brain surgeon, for which art I have the greatest respect and admiration, has proved it again and again. He has shaved off portions of the cortex, incised the substance of the brain, probed it, extracted neoplasms from it, and even blown air into it. Notwithstanding all these things, he has the satisfaction of seeing his patient recover from the anaesthetic with a sane mind. It is only when the cortex is affected widely, usually in some insidious manner by a toxin, that we get symptoms of mental disease.

This short paper cannot hope to cover all the ground in the causation of mental trouble. The psychogenic causes have been omitted purposely, for, as a rule, they are not within the province of the family physician. I have tried to bring before you certain physical disabilities which are at least very common accompaniments of mental disorder, and which I believe to be of the greatest importance in its production.

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VIRUSES AND SKIN DISEASES*

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The investigation of virus diseases is beset with peculiar difficulties. Viruses are either ultra-microscopic or if anything particulate is seen its nature is disputed. With one possible exception no virus can be grown apart from living cells, and therefore the cultural and biochemical methods of bacteriology are unavailable for the study of viruses. This essential association with living cells makes difficult the conclusive proof of life in these minute or unorganized agents, and a further difficulty is that in many cases a suitable experimental animal is not available either. It is not surprising, therefore, that the earliest direct evidence of the existence of viruses came from pathological studies of plants and animals, although Pasteur had suggested that agents of this type might be the aetiological factor in certain diseases, as hydrophobia. Iwanowsky (1891), working on the mosaic disease of tobacco plants, was the first to demonstrate the infectivity of a bacteria-free filtrate of an extract of diseased leaves, and Loeffler and Frosch (1898) obtained corresponding results in the case of foot-and-mouth disease, even though their filtrate was culturally sterile and contained no visible micro-organisms. Evidence has accumulated to the effect that more than a hundred diseases of animals and plants are now attributable to disease-producing agents, which have the following peculiarities.

PECULIARITIES OF VIRUSES

1. They are either ultra-microscopic or may be recognized as minute particles up to 0.25 μ in diameter. The smallest discrete particles are called elementary bodies, but larger forms possibly occur. In the case of psittacosis virus, at any rate, Bedson and Bland (1932) have demonstrated a cycle of development in which the particles vary greatly in size so that forms larger than some bacteria occur and masses of aggregated particles or of undivided virus produce plasmodial forms.

2. Dependent upon the minuteness of the particles is the property of filterability as compared with the bacteria. Obviously the larger forms of viruses would not be filterable ; on the other hand, some of the leptospira are.

3. A peculiar histological feature is commonly associated with virus infections. This is the presence in the lesion of curious intracellular bodies—the so-called " inclusion bodies " —which occur either in the cytoplasm or in the nucleus.

4. The inability to grow in cultures in the absence of living tissue cells.

Some of these points are worthy of discussion. In the first place, it is still a matter of dispute as to whether the minute particles described are actually the virus or whether they are non-specific granular-cell products on which the virus, something unorganized, is adsorbed. Recent experimental work has strongly supported the identity of these minute bodies with the virus. Woodruff and Goodpasture (1929, 1930) demonstrated the infectivity of isolated and washed Bollinger bodies—the inclusions of fowl-pox—which consist of collections of elementary bodies ; and Ledingham (1931) showed that these elementary bodies, and those of vaccinia too, could be flocculated in the presence of specific antiserum. Bedson (1932) has found that it is possible, by means of high-speed centrifugation, to concentrate and wash the elementary bodies of psittacosis, controlling the operation by direct observation, and then demonstrating their infectivity, specific agglutination, and ability to fix complement specifically. This is very strong evidence that the minute bodies are the virus. One can only escape this conclusion by assuming that the virus is adsorbed on tissue particles, but against this must be placed the observation of Bedson that the particles do not react specifically with an appropriate anti-tissue serum. Further, these experiments strongly support the conception that viruses are living organisms, and it is not proposed to discuss the more elaborate thesis of Sanfelice (1914) that a virus is a non-living poison produced by living cells which is capable of attacking new cells. Suffice it to say that viruses exhibit the essential characteristics of living organisms—for example, multiplication, adaptability, preservation of identity, antigenic properties, and sensitivity to antiseptics.

* Read in opening a discussion in the Section of Dermatology at the Annual Meeting of the British Medical Association, Dublin, 1933.

Filterability was originally the essential criterion of a virus, and as this implies a simple grading according to the size of the particles there is at first sight much to commend it. Inconsistent results were, however, not infrequent, and whereas some visible organisms were found to be filter-passers, smaller virus particles were sometimes retained in the filter, presumably by adsorption. In spite of complicating factors there remains no better approach to the investigation of a suspected virus disease than by the historical route of filtration. If a culturally sterile bacteria-free filtrate of an extract from a suspected lesion can reproduce a similar lesion in a susceptible host then the inference of a virus infection is a very strong one.

INCLUSION BODIES

Much attention has been paid to the inclusion bodies which characterize many virus lesions. These bodies consist of intracellular masses of hyaline or granular material—usually acidophilic, but in some cases basophilic. Three theories are put forward to explain their nature:

1. That inclusion bodies represent a stage in the life cycle of viruses analogous to certain protozoa (Calkins, 1904). The work of Bedson and Bland (1932) gives some support to this view.

2. That the minute bodies are the virus and that the larger inclusions are cellular products (Paschen, 1908).

3. That they represent colonies of virus (minute bodies) which, as a result of the cellular reaction excited by their presence, become enveloped in some plastic material produced by the cell (von Prowazek, Lipschütz, da Rocha-Lima).

Goodpasture (1929) discusses this problem in detail with special reference to the group of animal poxes (variola, vaccinia, sheep-pox, fowl-pox, and molluscum contagiosum). He concludes that the infective agent is a minute rounded, uniform micro-organism, presumably capable of invading cells and growing in them, and that the inclusion bodies consist of masses of these small bodies suspended in a hyaline matrix which is either the product of the cell or of the virus itself. Ludford (1924–5) draws attention to a point which it is well to bear in mind when endeavouring to interpret virus lesions in epithelium. The epidermis is largely avascular, and consequently its cells are unable readily to get rid of waste products. Added to this, these cells are undergoing keratinization, with consequent nuclear and cytoplasmic degeneration. These factors result in epidermal cells containing a host of granules of different kinds, which may readily mislead the unwary in search of virus bodies. The greatest caution must be exercised in the interpretation of the histological picture presented by such lesions.

Typical cytoplasmic inclusions occur in the animal poxes and in ectromelia, a contagious disease of mice. The intracellular virus masses occurring in psittacosis, though not presenting the characteristic picture of the typical inclusion, are probably of the same nature. Nuclear inclusions occur in herpes, zoster, varicella, and other virus diseases; variola gives rise to inclusions in both cytoplasm and nucleus. Little more need be said about the inability to cultivate viruses apart from living tissues. The fact has been established for many typical viruses, and the organism of bovine pleuro-pneumonia is the only unequivocal exception. This organism is readily filterable and has the minuteness of typical viruses, yet it may be cultured on horse serum without difficulty. It may be added that the failure to grow viruses on ordinary media is the greatest possible handicap to their study.

RESPONSES OF CELLS TO VIRUS INVASION

It will be inferred from these observations that a virus is essentially a parasite of a cell rather than of an individual, and it is of interest to note the various and peculiar responses of cells to the invasion. Once the minute virus particle has penetrated the cell it may multiply in the cytoplasm or nucleus, or in both. Goodpasture (1929) has summarized the cellular changes which different viruses give rise to, and he points out the wide range of responses between the rapid necrosis of ectodermal cells in an herpetic infection of the rabbit's cornea and the slow and prolonged proliferation of epidermal cells induced by the virus of the common wart. Cells may be stimulated to a slightly increased rate of proliferation by one virus whilst another may provoke violent reproductive activity. In other cases the metabolism of cells may be altered and the stages of degeneration marked by changes in the nucleus. Again, another virus may alter specifically the morphology of cells, affecting their size and shape, and that these changes are due to the presence of the virus in the cell and not to secondary inflammatory effects has been shown by a number of workers. For example, in molluscum contagiosum the lesion in the epidermis may attain maturity without a reaction in the corium (Goodpasture).

As a rule, each virus has a predilection for one type of cell, and this has led to the use of the term "tropism" in relation to virus infections. Thus zoster may be said to be neurotropic whilst varicella and molluscum are epidermotropic.

Since the effects of a virus infection upon a cell may be seen as a degeneration or as a hypertrophy so two types of skin lesion may result:

1. *Toxic.*—The lesion may be an erythematous macule which becomes purpuric as in typhus, or urticarial as in measles, or papular and vesicular as in varicella and herpes. The vesicle may dry up or proceed to pustulation, and end in crusts or scales.

2. *Hypertrophic.*—Here the proliferation of cells produces a papule, nodule, or tumour, as in the case of warts and molluscum contagiosum.

FOUR DERMATOLOGICAL LESIONS

At present there are only four strictly dermatological conditions which are definitely established as virus diseases (herpes, zoster, molluscum contagiosum, and warts), and their well-known clinical features will be ignored, attention being directed to those facts and observations which justify their inclusion in this paper.

Herpes.—Experiments have demonstrated beyond doubt that bacteriologically sterile vesicle fluid after filtration is infective, producing characteristic lesions clinically and histologically in susceptible animals, and the condition can be passed in series. In the Freedom Laboratory of the London Hospital we have a strain of herpes which has survived more than a hundred passages in the guinea-pig. The virus is evidently ubiquitous, and human carriers are numerous. Direct evidence of this has been obtained by Levaditi, Harvier, and Nicolau (1922) and by Busacca (1924, 1925), who demonstrated the presence of the virus in saliva and in the conjunctival sac. Indirect confirmation of the carrier rate has been obtained by the discovery of herpetic antibodies in human serums. Using the technique described by Bedson and Bland (1929) I have shown (1932) that the complement-fixation reaction is a reliable test for the presence of herpetic antibodies in serums, thirty positive reactions being obtained in a group of thirty-two individuals having a definite history of herpetic infection, whilst entirely negative results were obtained in a group of sixteen individuals with no history of herpes. Out of fifty-two unselected cases 45 per cent. gave a positive fixation with herpes, and, as it is unlikely that a transient and trivial lesion of this type would account for the persistence of herpes antibody in the blood, a simple explanation is that the positive cases are carriers of the virus. Possibly a more sensitive test for the presence of virus antibody in serum is to mix the serum with a living virus suspension and after an interval to titrate

the virulence of the mixture in an animal. If specific neutralizing bodies are present in the serum the infective titre of the virus will be appreciably diminished or lost. Neutralization tests, as they are called, have been employed with herpes virus and normal serums, and the results reported are given below:

		Percentage giving Neutralization
Zinsser and Tang	Normal adults, 17	58
ditto	,, children, 23	43
Andrewes and Carmichael ...	,, adults, 28	75

These figures suggest that 50 to 75 per cent. of normal individuals are carriers of herpes virus. Immunity against herpes is doubtful in man, but usually marked in other animals. The pathological picture is typical of a virus infection, and it resembles that of the vesicular lesions of varicella and zoster. Minute acidophil intranuclear bodies occur in epithelial cells, and they have also been noted in the cells of the cornea, central nervous system, liver, testicle, and ovary. Apparently these small bodies increase in size and coalesce, and finally occupy the greater part of the nucleus, forming the so-called inclusion body. Some of the affected cells become swollen and show a reticular degeneration, whilst others, possibly irritated by the virus, are transformed by a process of amitotic nuclear division into large multinuclear cells. The affected epidermis and the adjacent inflamed dermis become infiltrated with leucocytes, and a serous exudation dissociates cells and collects beneath the stratum corneum, forming the vesicle.

Zoster.—Owing to the lack of a susceptible animal, transmission experiments with zoster have been confined to human subjects, but adequate proof has been obtained that a bacteria-free culturally sterile vesicle fluid can produce typical histological lesions in a high percentage of healthy children, and incidentally a few of the positive "takes" developed clinical varicella. The disease is infectious, for numerous cases have been reported of zoster contacts developing chicken-pox, and much evidence has now accumulated to the effect that the two diseases are caused by the same virus.

A brief summary of the supporting evidence now follows:

1. Kundratitz (1925), Seigl (1927), and Bruusgaard (1932) produced clinical and histological chicken-pox by the inoculation of zoster vesicle fluid into young children. Several healthy contacts of these cases developed clinical chicken-pox after the usual incubation period. Further, children who had had chicken-pox were insusceptible to the inoculation of zoster vesicle fluid, and those who had recovered from the experimental zoster infection were found to be immune to inoculation with chicken-pox vesicle fluid.

2. Using the crusts of zoster and chicken-pox as antigens Netter and Urbain (1931) have investigated the serums of convalescents from these diseases for specific antibodies by the complement-fixation reaction, and their findings suggest that all cases of zoster (idiopathic and symptomatic) and varicella are due to the same virus.

With different antigens (vesicle fluids) and with a different technique I have confirmed the work of Netter and Urbain (Brain, 1933) but of course these serological tests do not furnish direct evidence, although they suggest the close relationship and possible identity of the viruses of zoster and varicella.

It has been suggested that the mechanism of infection from a case of zoster is that the virus reaches the mucous membrane of the upper respiratory tract of the contact, and from there it more readily invades the blood stream than the central nervous system, thus producing chicken-pox rather than zoster. Probably a number of individuals carry the virus dormant in the central nervous system, where it is activated by nerve injury and, reaching the skin via the affected nerves, produces an eruption in the area supplied by them. The histological changes in the skin are exactly similar to those seen and previously described as occurring in herpes. Acidophil inclusion bodies, "Zoster korperchen," are present in the nuclei of the cells of the vesicle epithelium, and also in connective tissue cells and capillary endothelial cells of the dermis (Lipschütz). The characteristic lesions in the central nervous system have been recognized since the brilliant description of them by Head and Campbell of the London Hospital in 1900. The immunity against zoster is usually solid and lasting.

Molluscum Contagiosum.—The infectious nature of this disease was first demonstrated by Paterson (1841), and this has been amply confirmed. Juliusberg (1905) showed that the infective agent could pass through a Chamberland filter, and the experimental incubation period was fifty days. Filterability with other types of filter was later reported. The disease is pathogenic only in the case of man, infection probably occurring at baths and in schools, and possibly through the agency of parasites. The incubation period varies from five weeks to six months. Growth is very slow, four to six months being the usual time for a lesion to attain 1 mm. in diameter. The lesions are probably disseminated by auto-inoculation. Nothing has been reported of its immunological reactions, but by means of the complement-fixation reaction and using suspensions of elementary bodies prepared from curetted mollusca I have demonstrated the presence of antibodies in the serum of a patient with multiple lesions. The agglutination reaction was negative. The experiments await publication. Peculiar histological features were noted by Henderson (1841) and Paterson (1841), who were the first to describe certain large oval hyaline bodies which were seen in the superficial layers of the epithelial nodules. These molluscum bodies were thought to be protozoal in nature. In the development of a molluscum the first cellular changes are seen in the deepest cells of the stratum mucosum. In the cytoplasm of these cells numerous small vacuoles appear with minute peripheral granules (about 0.25 μ), and it would appear that these granules are the elementary virus bodies (Lipschütz), for they become numerous and fill the vacuole, and ultimately fuse to form an oval hyaline body which fills the cell and displaces the nucleus. Smears from these hyaline bodies show that they consist of aggregations of minute bodies, and Goodpasture (1927) considers that these elementary bodies are morphologically consistent with a living filter-passing micro-organism developing about and within cytoplasmic vacuoles which may be regarded as the cellular response to the invader. The affected cells and their nuclei become enlarged, and degenerative changes finally destroy their identity, leaving collections of molluscum bodies alone; but before this happens a cellular proliferation occurs producing blunt, lobulated downgrowths of the epidermis, which elongates and compresses the papillae so that eventually the latter are represented as thin, fibrous septa between the lobules. In the fully developed lesion a cavity appears near the surface at the centre of the nodule, and gradually extends downwards into each of the lobules; this cavity contains the hyalinized "molluscum bodies." The lesion is surrounded by a layer of fibrous tissue, and inflammatory changes are slight or absent.

Warts.—It is believed that the common wart, with its plane, digitate, and filiform variations, the plantar wart, the senile or seborrhoeic wart, and the moist or fig wart are all manifestations of a virus infection. Variot (1893) reported the first successful inoculation of a wart from a child to an adult, and the infectivity of warts has been established by similar experiments. Cuiffo (1907) showed

that the infective agent could be filtered, and his work was confirmed by others, the usual incubation period being one to eight months, probably depending upon the susceptibility of the individual. Filtrates from condylomata acuminata were also found to be infective. Immunity to the virus has been demonstrated, and its spontaneous development probably accounts for the sudden disappearance of lesions. Acidophilic bodies in the cytoplasm and basophilic ones in the nucleus of affected cells have been described as inclusion bodies. Histologically there is evidence of active proliferation of cells in the Malpighian layer, resulting in the formation of a surface projection and in elongation and widening of the interpapillary processes, with thickening of the stratum corneum. The amount of cellular infiltration and inflammatory reaction varies widely, and is most marked in the case of moist warts. It is probable that the clinical varieties enumerated depend upon the following variable factors:

1. The reproductive activity of the germinal layer.
2. The degree of acanthosis.
3. The degree of corneous hypertrophy.
4. External influences such as pressure, humidity, and friction.

CONCLUSION

I am aware that there are many omissions in this brief paper, and I have not mentioned the effects of physical and chemical agents upon viruses, nor have I discussed general problems of immunity. With regard to the latter it is perhaps worthy of remark that there is no real difference between viruses and bacteria. In other words, the immunity which follows recovery from virus infections is just as variable between diseases as that following bacterial infections.

To conclude, I would like to associate myself with Goodpasture when he deplores the abuse of the group of virus diseases as a repository for all sorts of nondescript and ill-defined conditions of unknown aetiology and indefinite pathology. There are a number of common dermatological conditions the origins of which are completely obscure, and naturally the viruses are suspect. However, since Pasteur's suggestion more than fifty years ago that some diseases might be due to ultra-microscopic organisms, there is no originality of thought in incriminating a virus without supporting evidence.

I am very happy to acknowledge my indebtedness to the London Hospital for the research facilities and the financial assistance its Research Fund Committee has so generously afforded me. I have been working on certain aspects of virus diseases under the direction of Dr. S. P. Bedson in the Freedom Research Laboratory of the London Hospital since November, 1930, and my acquaintance with these problems and my few contributions to the solution of some of them are alike due to much instruction and expert help from Dr. Bedson. I record these facts because they account entirely for my present part in this discussion, and for these reasons I regard the implied distinction as something impersonal.

In composing this paper I have drawn largely from the volume on virus diseases produced by the Medical Research Council and also from the excellent paper by Goodpasture on cellular inclusions and the aetiology of virus diseases. The numerous references given in these two sources are omitted from the list below.

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NASAL GRANULOMATA*

BY

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Tumours mainly composed of granulation tissue may occur in any region of the body. They are not commonly met with in the nasal cavities, but certain varieties, when present, are of great interest to the rhinologist. From the point of view of histology their general structure is always broadly the same, though certain differences in detail may be present, which will depend on the aetiology of the tumours. According to Baum[1] all granulomata present "collections of rapidly growing blood vessels whose walls are formed by a single layer of epithelium supported by a stroma of young connective tissue containing many cells." In addition, however, the growth may present a specific or infective organism, which will definitely decide the nature of the tumour.

For the purpose of this discussion I shall first describe granulomata which show no specific organism to either histological or bacteriological examination. This class, which in structure corresponds most closely to pure granulation tissue, may be divided into two groups—simple and malignant.

SIMPLE GRANULOMA

Tumours of the first, or "simple," group may be met with in any part of the body; when occurring in closed cavities such as the abdomen or thorax they may grow to a huge size and closely resemble malignant growths in their behaviour and appearance. Prima[2] reports five such cases, three in the abdominal cavity, one in the thorax, and one on the back; owing, however, either to their enormous size or to their position complete removal was impossible, and treatment had to be confined to partial excision and packing. Histological examination showed these growths to be what he termed "chronic inflammatory granulomata," and it is of much interest that in each case the growth completely disappeared as a result of the operative intervention. Very extensive simple granulomata are not met with in the nasal cavities, for the reason probably that they produce symptoms which draw attention to their presence at an early date. When occurring they are usually due to trauma or the presence of a foreign body.

In the first instance they are most often post-operative, while in the second any of the more common varieties of foreign body may, as a result of inflammatory changes, become surrounded with granulation tissue to such an extent as to form a true tumour. Pearlman and Pilot[3] report such a case, caused by strands of gauze which had remained in one side of the nose for a period of two years. They point out that granulomata due to foreign bodies often resemble polypoid growths, and have a distinct inclination to myxomatous changes. Giant cells with an enormous number of nuclei are usually found in the neighbourhood of the irritant. The diagnosis and treatment of such growths are not usually difficult.

MALIGNANT GRANULOMA

In the year 1896 McBride[4] published a case of "rapid destruction of the nose and face in a young man of 28." It started as a pustule on the inside of the ala nasi, following a scratch from a finger-nail. The disease manifested itself as a steadily progressive phagedaenic ulceration, which resisted anti-syphilitic treatment and caused the death of the patient some nine months later. Histological

* Read in opening a discussion in the Section of Oto-rhino-laryngology at the Annual Meeting of the British Medical Association, Dublin, 1933.

examinations of removed tissue gave a negative result, and the necropsy threw no light on the subject. This is the first reference I can find to any case which will fit in with the two following, fully described by Woods[5] in the year 1921.

Woods states that these cases were unique in his experience, and as a suitable name he suggests "malignant granuloma." They both occurred in elderly men, and presented the typical appearance of tertiary syphilis—fetor, which was of a quite peculiar nature, glutinous crusts, perforation of the septum, and a steady, progressive necrosis of the bony framework of the nose and palate. In each case the Wassermann reaction was negative, and anti-luetic and local treatment was of no avail. Microscopical examination showed granulation tissue to be the dominant feature.

In the first case *x*-ray treatment was carried out, but without improvement, and this patient died from cachexia four and a half years after the onset of the disease.

The second case closely resembled the first, and as anti-syphilitic treatment was here also of no benefit, it was decided to try the effect of radium emanation. This was introduced through a perforation in the palate; four tubes of 12 millicuries activity, in steel needles wrapped in tea lead, were used, and as a result great improvement took place at the end of two weeks. A second dose of 20 millicuries was then given, and this was followed by rapid healing. A small recurrence on the inner wall of the left nose was similarly treated, and the patient left hospital apparently cured. StClair Thomson[6] states that he has observed two similar cases, one male and one female.

These cases, then, represent a type of granuloma which, though simple in that no organisms or histological abnormalities were found, were nevertheless definitely malignant in their course. Woods sums up the cases as follows: "Until we understand what is meant by a cell taking on malignant action we cannot doubt that what happens to one kind of cell may happen to another, and if we can have a malignant epithelioma why not malignant granuloma?

I do not find any further reference to this class of tumour until 1925, when McArthur[7] of Melbourne published an almost similar case. Here again tertiary syphilis, despite a negative Wassermann, would not be denied as a diagnosis, and once again the disease refused to be affected by the most energetic anti-syphilitic treatment. McArthur, who grasped the similarity of his case to those reported by Woods, employed radium (in what form he does not state) as a therapeutic measure; as there was, however, no apparent effect, three full doses of *x*-ray therapy were given. Improvement followed, the necrotic areas came away, healing took place, and there was no return of the disease one year later. Here again no organism could be isolated; granulation tissue formed the principal mass of the growth, and the author considered the case to be one of malignant granuloma.

I find no further reference to this variety until the year 1929, when Kraur[8] published notes of three cases which, in my opinion, might be included in this group. His communication was a provisional account of the results of morphological examination of a peculiar and hitherto undescribed lesion of the nose, mouth, and pharynx. Details of three cases are given, all of which occurred in men. They differed somewhat from the cases reported by Sir Robert Woods, by starting in the soft tissues—two in the anterior nares and one in the soft palate.

In each case the disease showed the same tendency to spread, but without definite tumour formation. Eventually the nasal cavities, alveoli, and palate were infiltrated, and from the description given these cases appear to have resembled very closely malignant granulomata. As a result of histological examination the author believed that, certainly in two of his cases, he was dealing with an independent specific process of a chronic inflammatory nature but of unknown aetiology. In the third case he considered that he may have been dealing with a granuloma with sarcomatous changes. Because of the destructive effect in parts of the described granulomata, attributable to the presence of gangrene, he suggests that the clinical picture might be described as "granuloma gangrenescens." The particular treatment adopted is not described, but one patient died from secondary haemorrhage five and a half months after the onset of the disease, the other two from cachexia.

The last and most recent case I have found in the literature is reported by Dr. Geo. B. Wood.[9] He terms it "a case of mutilating granuloma of the nose and face with fatal ending." The patient was a female aged 32, and the disease began with soreness and swelling of the tip of the nose, accompanied by rather profuse watery discharge. On examination the septum was found perforated, and there was extensive crusting and swelling of the floor of the nose. The condition suggested tertiary syphilis and, in spite of a negative Wassermann and negative therapeutic results, a provisional diagnosis of a breaking-down gumma was made, and active anti-syphilitic treatment was given. This had no effect, and the disease made steady progress, involving the cheeks on both sides, until finally, at the time of her death, practically all the structures between her eyes and lower jaw had become involved. She died from cachexia, having lived for about twelve months from the time she first came under observation. Very full and careful bacteriological and histological examinations were made by several pathologists, and as a result no more definite name could be given to the growth than that of "granuloma of a malignant type." There is no mention of either radium or *x*-ray therapy having been employed.

I have dwelt in some detail with these cases; there are very few on record, and it would seem that recognition must be given to a tumour of unknown aetiology, due to no visible organism, made up of granulation tissue, and malignant in its behaviour. It would be interesting to know if any similar growths have been described in other regions of the body.

Carcinoma and Sarcoma

Though, strictly speaking, carcinoma and sarcoma do not belong to the granuloma group, they must always be thought of when the question of diagnosis arises. Primary carcinoma is rare, while sarcoma is not so uncommon. Carcinoma when present is usually a squamous-celled epithelioma, and may occur at the junction of skin and mucous membrane, but is also met with in any part of the nasal fossae. Sarcomata are usually of the round or spindle-celled variety; "of eighty tumours of the septum tabulated by Arslan,[10] twenty-nine were cases of sarcoma and eleven carcinoma."

Granuloma of Specific Inflammatory Origin

There still remain for discussion granulomata due to a specific inflammatory condition. This group will include: (1) Syphilis. (2) Tuberculosis. (3) Glanders. (4) Leprosy. (5) Actinomycosis. (6) Rhinoscleroma.

The syphilitic granuloma or gumma is too well known to require description. Suffice it to say that, when occurring in the nose, it is most frequently seen on the septum, where it may produce large perforations of either the cartilaginous or bony portions.

Nasal tuberculosis is an extremely rare condition and is usually secondary. The tuberculous tumour varies from small nodules the size of a pin's head to those as large

as a pea. The histology resembles that of the tuberculous lesions in other situations; only identification of the tubercle bacillus in either the growth or discharge can definitely decide the nature of the disease. In connexion with tuberculomata may be mentioned the allied disease lupus. When primary, the septum is the favoured situation, but the turbinals also are almost invariably attacked as the disease advances. The progress of lupus in the nasal cavities resembles that in other regions, and as a rule the diagnosis is not difficult.

Glanders, leprosy, actinomycosis, and rhinoscleroma are only mentioned to complete the list of possible granulomata. They are to be thought of in the absence of the more common form of tumours. Leprosy and rhinoscleroma are so rare in this country as to be scarcely worth considering, while glanders and actinomycosis can be only definitely established by the finding of their specific organisms.

In this communication I have only touched on most of these diseases. To deal with the nasal granulomata from all points of view would absorb more time than is at my disposal. If, however, I have succeeded in stating a sufficient number of facts to promote a discussion, then my object will have been more than achieved.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

THE ORIGIN OF PULMONARY TUBERCULOSIS: MUTATION OF TUBERCLE BACILLI

It has always been impossible to explain why the overwhelming amount of primary pulmonary tuberculosis should occur in human beings between the ages of 16 and 26. I venture to suggest that living bovine bacilli swallowed by an infant with milk are conveyed to the mesenteric glands, where they lie dormant in a new environment—namely, human tissues—and are conveyed to the lungs before or after mutation into living active human tubercle bacilli. In the *British Medical Journal* of February 27th, 1932, I suggested the possibility of mutation of the tubercle bacillus from the bovine type to human type after a long residence in human tissues, and quoted the case of a farmer who had recovered from tuberculous glands in the neck when 5 years old. Forty years after, he developed pulmonary tuberculosis; the tubercle bacilli found in the lung were human, while those found in the neck glands were presumably bovine. It is extremely difficult to obtain proof of this theory, as the interval between the primary infection and the later one is usually fifteen to twenty years. I have had the good fortune to observe the following case, which I reported to the Royal Society of Medicine fully in February, 1914, and which, by the courtesy of Dr. Dunderdale, I have recently examined in detail. Briefly, the case is as follows:

Twenty years ago a girl developed tuberculous adenitis of both sides of the neck, with tuberculous small joints of hands, and rheumatism. The glands suppurated and were drained, as it was impossible to excise them. At this time there was no evidence of pulmonary disease. She was treated with injections of tuberculin, and made a good recovery. Examinations of the pus and glands and animal inoculations showed definite *bovine* tubercle bacilli. Eighteen years after the glands in the neck had subsided, she developed pulmonary tuberculosis in both lungs. Cultural and animal examinations show the bacilli to be human in type.

This is the first opportunity I have had of producing some scientific proof of my belief that pulmonary tuberculosis may be caused by the ingestion of bovine bacilli in infancy: that these bacilli are conveyed to the lungs, where they lie dormant for many years, and in a new environment undergo mutation into human bacilli and so cause pulmonary tuberculosis. If this is correct, it would account to some extent for the great mass of cases of this type occurring between the ages of 16 and 26.

Sir William Whitla, in his brilliant Cavendish Lecture in 1908, has shown that living tubercle bacilli introduced into the stomach of an animal are to be found in four hours in the lung substance, and that the bacilli can pass rapidly through the intact intestinal mucosa without producing any local lesions. Calmette has shown that if the oesophagus is ligatured carbon particles cannot reach the lung after inhalation. These facts go a long way to prove the theory which I have always held—namely, that pulmonary tuberculosis is not caused by inhalation, but by the ingestion of bacilli, which penetrate the intestine and are conveyed by the thoracic duct to the lung. The importance of this cannot be exaggerated when we come to consider the prophylaxis of pulmonary and other forms of tuberculosis. By a blind adherence to the inhalation theory the part played by the intestine has been minimized, whilst an infected milk supply has been permitted to inflict its ravages on the human race (Whitla). The amount of tuberculosis in dairy cows in this country is alarming, and to-day about 10 per cent. of milk sold to the public contains living tubercle bacilli. If this serious state of things could be remedied by compulsory pasteurization in my opinion the whole of surgical tuberculosis would be eradicated from children, and also a fair proportion of pulmonary tuberculosis.

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London, W.

PLACENTA PRAEVIA WITH TWIN PREGNANCY AND ADHERENT PLACENTA

Placenta praevia with a twin pregnancy must certainly be rare, and as the treatment presents certain points of special interest no further excuse is necessary for placing the following case on record.

A multipara, aged 27, was admitted to the hospital at 12.55 a.m. on May 19th, 1933. She was twenty-eight weeks pregnant, and bleeding from the uterus had commenced about midday on May 18th, twelve hours prior to admission. When I saw her the skin was blanched, lips a pale pink, pulse of moderate volume and rate below 100, and the temperature subnormal. She was still bleeding, and abdominal palpation gave no definite information. On vaginal examination the cervix admitted two fingers, and the internal os appeared to be completely covered by placenta.

A general anaesthetic was given at 1.15 a.m., and I performed bipolar version (after Braxton Hicks's method) and brought down a leg. It was unnecessary to go through the placenta, since at one point it was possible to reach and rupture the membranes without disturbing the placenta overlying the internal os. The procedure took two minutes, and little manipulation was necessary, as a knee was soon palpated with the finger-tips on rupture of the membranes. The patient

was made comfortable and left. At 6.20 a.m. she delivered herself of a living female child (weight 3 lb.). Abdominal palpation, however, showed that a second foetus still remained in the uterus. The cord was carefully ligatured, and vaginal examination revealed a second intact amniotic sac. Bleeding recommenced, and conditions now almost approximated to those existing before the birth of the first foetus. The second sac was at once ruptured, and a foot presented. This was drawn down to the vulva and the labour allowed to proceed. At 7.40 a.m. a second living female child was born (weight 2 lb. 13 oz.). Attempts to express the placenta proved fruitless, and at 8.5 a.m., as a steady trickle of blood from the uterus persisted, I introduced a hand into the uterus and peeled off a strongly adherent placenta from the uterine wall. Intramuscular pituitrin and submammary saline were then administered. No further haemorrhage occurred. The placenta was that of a uniovular twin, with one chorionic bag and two amniotic sacs partially fused along the wall of contact. It had been abnormally adherent over about one-third of its superficial area. The patient passed through an uneventful puerperium, and was discharged in normal health on May 31st. Both infants died within twenty-four hours of birth.

I would draw attention to the following points.

1. Abdominal examination gives little help in the diagnosis of placenta praevia. Often the palpation increases the haemorrhage and serves no other purpose.

2. If, after delivery, a second foetus is found to be present in the uterus immediate vaginal examination should be performed, the second amniotic sac (if intact) should be ruptured, and a leg brought down. If the second foetus presents by the vertex, bipolar version should be performed. An anaesthetic should not be required.

3. An adherent placenta can often be safely removed from the uterus without anaesthetizing the patient. I have performed this operation many times, and have never noted the shock one is taught to expect.

4. Many cases thought to be central placenta praevia can be treated by Braxton Hicks's version without perforating the placenta with the fingers. A few moments' search will nearly always reveal a point where the membranes can be approached and ruptured without tearing through the placenta.

In fifty cases of placenta praevia in the last seven years I have had only one case in which it was necessary to tear through placental substance.

I am indebted to the medical superintendent for permission to publish this case.

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British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

BORDER COUNTIES BRANCH

Aetiology of Appendicitis

At the annual meeting of the Border Counties Branch, on June 8th, Dr. C. M. Craig delivered his presidential address, taking as his subject the aetiology of appendicitis.

Dr. Craig said that fifteen years of general practice, associated with surgical work at the Westmorland County Hospital, had led him to think that the incidence of appendicitis was much less than might be inferred from experience of hospital practice; that the disease was relatively more common in rural communities; and that there was some connexion between its incidence and tonsillitis. He had therefore examined the records of insured patients for three years, during which time his average panel had been made up of 1,200 urban and 300 rural patients. In this period he had operated for appendicitis on thirteen urban and nine rural patients; the age distribution was similar in both groups, more than half the cases occurring between the ages of 16 and 25. The average incidence of appendicitis as determined by operation, was 5.2 per 1,000. The disease was nearly three times more frequent in the rural than in the town population. With a view to discovering whether there was any clinical significance to be attached to the histological similarity between the appendix and the tonsils and adenoids, a questionary was sent out to 151 patients operated on for appendicitis during the three years asking whether there had been any operations also for infection of the tonsils and adenoids. Replies were received from 128 patients, twenty of these in the affirmative, indicating the astonishing figure of 156 per 1,000 as the incidence of tonsillar infection requiring operation in cases of appendicitis. The proportion of children in the county operated on for tonsillar troubles was found to be 101 per 1,000. An inquiry was also sent to 500 patients, mostly children, operated upon in hospital for tonsillar infection. Replies were received from 428, and no fewer than twenty-one of these had had an operation also for appendicitis either before or after the tonsils had been removed. This indicated an incidence of appendicitis among tonsil cases of forty-nine per 1,000—a very large increase over the average of 5.2 per 1,000 of the insured population. There seemed thus to be definite evidence of a very close connexion between appendicitis and tonsillitis. Aschoff had expressed the view that the exciting agents in the former disease were such normal inhabitants of the healthy bowel as streptococci, pneumococci, and *B. coli*. There was a bacterial flora in the appendix with a peculiar distribution, and this, when its virulence was increased for some reason, resulted in invasion consequent on mechanical causes such as kinks in the organ. As regards factors which might raise the virulence of such bacteria, the figures of the Registrar-General in his report on occupational mortality in 1921, and the mortality statistics for 1925, would seem to implicate an excess of food. Farmers, who had a low general mortality figure, had a very high incidence rate of appendicitis and diabetes; their labourers showed a mortality rate lower by half in this respect, the presumption being that they ate less food. The mortality figures for appendicitis remained fairly constant during the war years, although the diabetes figures declined, due apparently to shortage of food. This apparent discrepancy was probably explained by the fact that the reduction only affected diabetes in patients over the age of 45, whereas the great majority of cases of appendicitis occurred in persons under that age. Moreover, many hundred thousands of young men were on active service at a time when they were most liable to appendicitis. Two facts emerged from an investigation of the dietary of the farming community—namely, that a vast quantity of food was habitually consumed, and that an enormous excess of carbohydrate was ingested. In the body the carbohydrate was ultimately resolved into carbonic acid and water, and to maintain a constant hydrogen-ion concentration of the blood a heavy drain must fall on its alkali reserve. Experiments undertaken by Dr. Loveday at the Manchester Royal Infirmary in twenty-five cases of acute appendicitis had revealed a very marked diminution in the alkali reserve of the blood. While admitting that further research was required before the clinical significance of the diminution could be defined, Dr. Craig was disposed to regard it tentatively as significant of the influence of a food factor in the causation of appendicitis. He remarked that the influence of diet on bacterial infection had been repeatedly demonstrated. For example, urologists had maintained that the best way of treating a *B. coli* infection of the kidney was to give a diet containing up to 240 grams of fat, at the same time reducing the carbohydrate intake

to 20 grams a day. The resulting acidosis had a beneficial effect, far surpassing that obtained by synthetic remedies. Dr. Craig cited a case of radium burn ulcer and cystitis which had cleared up dramatically on such dietary treatment. He concluded, therefore, that it was possible to trace the life history of appendicitis on the following lines. It began in early childhood with some metabolic disturbance, which lowered the resistance to infection. As a result, the tonsils and adenoids became infected. The metabolic disturbance might originate from faulty diet or infective agencies, especially nasal catarrh. From the throat the micro-organisms passed to the bowel, eventually infecting the appendix, although a long dormant period might follow before the development of an acute attack. Aschoff had found histological evidence of disease in 33 per cent. of apparently normal appendices. The attack of appendicitis in adults was precipitated by some metabolic disturbance brought about by faulty diet, excess of carbohydrate being the main factor. Reference was made in this connexion to Dr. Paton's article on carbohydrate ingestion in the *Journal* of April 29th, 1933, wherein it was shown that an increased consumption of sugar might be associated with chronic catarrhal and exudative processes. It would appear, therefore, that the incidence of appendicitis would not decrease until the carbohydrate consumption of the community was diminished and a prophylactic was found for the common cold. These considerations might have a further application, dietetic errors leading to a diminished alkali reserve being, for example, a deciding factor in rendering some women prone to puerperal sepsis. Dr. Craig thought that the future progress of medicine might prove to lie in the hands of the biochemist.

Reports of Societies

INTERNATIONAL PAEDIATRIC CONGRESS

The third International Paediatric Congress, held in London on July 20th to 22nd, under the presidency of Dr. G. F. STILL, was attended by nearly 400 delegates from thirty countries. The inaugural ceremony took place in the Great Hall of the British Medical Association House, when T.R.H. the Duke and Duchess of York attended to open the congress and to welcome the members. H.R.H. THE DUKE OF YORK, in expressing his pleasure at greeting so large a gathering, especially in view of the fact that this was the first international meeting in this country of physicians dealing with the diseases of childhood, made a few well-chosen remarks, stressing the importance of paediatrics, particularly on the preventive side. "Speaking as a father," he voiced the gratitude of parents far and wide who would benefit from the deliberations of the congress. The PRESIDENT and Sir THOMAS BARLOW expressed the thanks of the members to the Duke and Duchess for their interest in the congress, and after the departure of the Royal visitors the scientific proceedings began.

ALLERGY

The first main discussion took place on the subject of the nature of allergy and its role in diseases of children. Dr. ARNOLD RICH (Baltimore) spoke from the pathological side, and brought forward the results of experiments which demonstrated that in bacterial allergy the individual tissue cells are hypersensitive to the bacterial antigen, and the allergic reaction is not dependent upon circulating antibody. He stressed that all recent work went to show that allergy is not essential for immunity. Experiments show that immunity can be separated from allergy, and that neither of the two primary characteristics of immunity—the prevention of spread of bacteria and their efficient destruction—is dependent upon allergic inflammation for successful operation. He further pointed out that allergy can be established without immunity, and acting alone it lowers resistance to infection. Professor F. HAMBURGER (Vienna) dealt more with the clinical aspects of allergy, basing his remarks mainly upon the study of problems of tuberculosis by means of the tuberculin reactions. Allergy could be shown to develop prior to the onset of the disease. It was continuous, but subject to the fluctuations caused by other diseases—by light, food, and other so far unknown factors; and such fluctuations might be the cause of exacerbations. In his opinion the tuberculin reaction was of great value in prognosis, and tuberculin should be used to a greater extent for prophylaxis. Dr. PEHU (Lyons), in a paper prepared jointly with Dr. P. WORINGER (Strasbourg), described the clinical aspects of the allergic states of non-bacterial origin, enumerating the various substances capable of sensitizing the human organism under the main headings of inhalation, food, drug, and contact allergens. He proceeded to give a description of the clinical manifestations of the non-bacterial allergic states in the various systems affected, pointing out how the different allergens tended to affect different systems at various periods of life. He thought that there were three possible causes of non-bacterial allergy: sensitization after birth, sensitization *in utero*, and hereditary transmission by the germ cells, the last being of a specific nature or merely the inheritance of a predisposition. Dr. W. R. F. COLLIS (Dublin) advanced the view that the same disease syndrome could be produced by more than one organism provided that the body was in the state of allergy, and he instanced erythema nodosum in this connexion. Dr. H. ERNBERG (Stockholm) also discussed allergy in relation to erythema nodosum. Professor F. GROER (Lwow) stressed the kinetic aspects of allergy, dependent upon two main factors—the susceptibility of the body and the power to react on the part of the body. He explained how these factors could be assessed accurately in the case of a disease such as tuberculosis. Professor G. DE TONI (Bologna), Professor R. DEBRÉ (Paris), and Dr. B. RATNER (New York) also took part in the discussion.

MILK

The discussion on the second day, on the prophylaxis of milk-borne diseases, was opened by Professor A. PETTERSSON (Stockholm), who dealt especially with the problem of tuberculosis. Not only was there the universal danger of bovine tuberculosis, but in the speaker's opinion human tubercle bacilli were frequently introduced into the human body with milk. He also mentioned the risk of infection with the organisms of undulant fever in those districts where infectious abortion occurred, but children under 10 years of age fortunately appeared to be either insusceptible or very slightly susceptible. Professor G. BESSAU (Berlin) spoke of the saprophytic organisms in milk and their significance. The introduction of varieties of the colon bacillus by milk into the alimentary canal in children produced a completely different type of intestinal flora from that in the breast-fed baby, for example, and many of the digestive disturbances in the artificially fed baby could be attributed to the spread of *Bacillus coli* to the upper parts of the alimentary tract. In contrast to the adult, where the presence of the colibacilli in the bowel had no deleterious effects, young babies might develop inflammation of the whole of the intestine, small and large, from this cause. Professor G. B. ALLARIA (Turin) explained that in Italy at present there was a strong movement for the improvement of the dairy industry, and in the meanwhile it was of importance to seek an answer to the question of whether the advantages of giving raw milk as a "live" liquid, and attempting to prevent bacterial contamination, were greater than those obtained by giving a sterile milk at the expense of its vital properties. The speaker thought that the importance of the vital properties had been exaggerated, and that in the present state of the dairy industry in the majority of countries the only course was to purify the milk by some thermic process.

Professor P. LERÉBOULLET (Paris) brought forward a survey of the possibilities of diminishing the risks from cow's milk by a thoroughly planned hygienic scheme, by legislation, and by municipal and collective measures. He summarized the position in certain countries, and, stressing especially the difficulties, concluded strongly in favour of pasteurization of milk under proper control as the ideal measure. Failing a proper organization, he thought that the boiling of milk prior to consumption was the only course. Dr. J. M. HAMILL (London) gave a short review of the position in this country as regards bovine tuberculous infection in children. Since, as he pointed out, even certified and tuberculin-tested milk occasionally contained tubercle bacilli, there was no alternative to some treatment of the milk to destroy organisms. This, he thought, was to be found in efficiently controlled pasteurization. He emphatically condemned the idea that the drinking of infected milk was valuable to produce an immunity. The discussion was continued by Professor F. FEER (Zürich), Professor S. MONRAD (Copenhagen), Professor P. ROHMER (Strasbourg), Professor G. FRONTALI (Padua), Dr. H. BOCK (Berlin), Dr. W. C. DAVISON (U.S.A.), Dr. H. P. WRIGHT (Montreal), Dr. J. DUZAR (Pecs), Professor G. MOURIQUAND (Lyons), Professor G. NOEGGERATH (Freiburg), Dr. W. SPOLVERINI (Rome), Professor W. I. JUNDELL (Stockholm), and Dr. G. PETRANZI (Hungary).

The afternoon sessions on the first two days and the morning session on the last day were devoted to short communications given in sectional meetings. On the social side the delegates were offered an excellent series of gatherings. On Thursday, July 20th, the Royal College of Physicians gave a reception, at which the guests were welcomed by Lord and Lady Dawson. Later in the evening, Dr. G. F. Still held a presidential reception at the Goldsmiths' Hall, where the guests were received by Lord Queenborough. Academic robes were worn, and the magnificent possessions of the Goldsmiths' Company were exhibited to a large gathering, marked by the wealth of colour of the gowns of the delegates. On Friday, July 21st, Lord and Lady Howard de Walden gave an afternoon reception, while in the evening the dinner of the congress was held at the May Fair Hotel. At this ceremony, after "The International Congress" and "The Guests" had been proposed by the chairman (Dr. G. F. STILL), the Minister of Health (Sir HILTON YOUNG) replied on behalf of the latter. "The Chairman's Health" was proposed by Sir THOMAS BARLOW. The delegates afterwards proceeded to a reception by H.M. Government at Lancaster House, where Sir Hilton and Lady Young welcomed the visitors.

On the afternoon of the last day a clinical demonstration of patients from the London hospitals was held at the Hospital for Sick Children, Great Ormond Street, and after this a reception by Sir Gomer and Lady Berry took place at the Infants Hospital, Vincent Square. The next congress will be held in Rome in 1936, under the presidency of Dr. L. Spolverini.

The Russian Department in the University of Birmingham has begun to issue information about the research work, medical and other, in progress in Slavonic countries. The first booklet of the series deals with Czechoslovakia, and comprises notes of investigations in various branches of science in Prague, Bratislava, and Brno. Mention is also made of publications that have been issued recently. The second booklet relates to Poland, and has been issued with the assistance of the Ilchester Fund for the encouragement of Slavonic studies. The Universities covered in this way include those at Warsaw, Cracow, Lwow, Poznan, and Wilno. Further additions to the series are contemplated, and it is hoped thus to co-ordinate work in some of these subjects with that of investigators in other countries who are not acquainted with the Slavonic languages. The information is being collected from the professors and heads of departments in the universities of the five Slavonic countries.

Reviews

DISEASES OF THE LUNGS AND TUBERCULOSIS

The fourth volume of the series on medical treatment brought out under the auspices of Professor M. LOEPER, the occupant of the chair of therapeutics in the Medical Faculty of Paris, is devoted to the treatment of diseases of the lungs.[1] It is divided into two nearly equal parts, the first of which, on diseases other than tuberculosis, is entirely by Professor Loeper, who deals with laryngitis, cough, expectoration, antiseptic methods, acute diseases, gangrene of the lung, and asthma. There is naturally a little overlapping, for in his account of haemoptysis he gives some details of a case of a leaking aneurysm in a vomica in which adrenaline was injected directly into the bleeding area ; in this connexion he quotes the recent use of pituitrin by Rist, and immediately adds, "La méthode présente de petits risques." Among the various remedies mentioned for asthma attention is drawn to the use of *x* rays, not only over the lungs, but also over the spleen, the benefit from the latter exposure being ascribed to the liberation from the splenic cells of substances which effect a progressive desensitization. Reference is made to the use of a prophylactic vaccine or serum to protect children with measles or whooping-cough from pneumococcal or streptococcal bronchopneumonia. Tuberculosis of the lungs is considered in twelve articles by thirteen well-known contributors, and a highly authoritative and complete account is thus presented. Dr. L. Tanon, professor of hygiene in the Paris Faculty of Medicine, summarizes the principles of personal prophylaxis. Under the heading of diet he refers to the evil influence exerted by regular and full doses of thyroid preparations taken for slimming, and recalls from Brillat-Savarin's *Physiologie du Goût* the incident of the young woman who became tuberculous after drinking vinegar with this vain object. Dr. Turpin describes the preventive inoculation by Calmette and Guérin's permanently attenuated bovine bacillus (B.C.G.) ; Professor Léon Bernard writes on sanocrysin ; and Drs. Nègre and Boquet, after stating that tuberculin treatment has now been almost abandoned, describe that by alcoholic extracts of the tubercle bacillus. Professor Emile Sergent discusses the indications for surgical intervention, and Dr. E. Rist contributes an admirable account of artificial pneumothorax.

In his book *Les Réveils de la Tuberculose Pulmonaire chez l'Adulte*[2] Professor EMILE SERGENT reviews the recent developments in the conception of the nature of tuberculosis in a series of papers most of which have been published previously in much the same form. The main subject is the relation of the clinical manifestations to the ultravirus and to the mature acid-fast bacilli originally described by Koch. While fully in accord with Fontes and Calmette in regard to the life-cycle and pleomorphic phases of the *Mycobacterium tuberculosis hominis*, Sergent joins issue with Calmette on the latter's division of (1) diseases usually acute and due to infection with the ultravirus (pre-bacillary granulaemia), and (2) diseases usually chronic and due to the activities of the acid-fast bacillus of Koch (bacillosis). Such a sharp distinction, he considers, is not compatible with clinical experience: the conditions are extremely complicated ; the life-cycle of the micro-organism continues in the tuberculous body, and the ultravirus and bacillary phases vary in their

[1] *Thérapeutique Médicale : IV. Poumons et Tuberculose.* Publiée sous la direction du Professeur M. Loeper. Paris: Masson et Cie. (Pp. 378 ; illustrated. 50 fr.)

[2] *Les Réveils de la Tuberculose Pulmonaire chez l'Adulte : Conditions de leur Polymorphisme Anatomo-Clinique.* Par Professeur Emile Sergent. Paris: Masson et Cie. 1933. (Pp. 228 ; 27 figures. 34 fr.)

activities. In addition to the state of the " seed " that of the " soil " must be taken into account in considering the character of the clinical manifestations. The occurrence of active tuberculosis in adult life is to be regarded in the great majority of cases, except in the virgin soil of races not exposed to infection, as a reactivation and awakening of a focus latent from infection in early life, the so-called " cured " tubercles being in reality virulent and containing the micro-organisms. Another point on which stress is laid is that, although the old dictum " no tuberculosis without bacilli " no longer holds good, there are cases in which acid-fast bacilli are found in the blood, especially by Loewenstein's method, in which this does not signify an active infection, but only that the bacilli are in process of elimination: this may occur in the course of acute non-tuberculous diseases, and the process is, of course, different from a liberation of bacilli into the blood stream causing generalized infection. Much emphasis is laid on the importance of the lymphatic spread of tuberculosis, not only in primary infections, but in the awakening of latent tuberculosis in adult life—for example, the spread of infection from a focus in the mediastinal or cervical glands to the lungs. While a massive infection from without may cause tuberculous activity in an adult previously in an allergic state from infection in early life, Sergent believes that an endogenous reinfection from a latent tuberculous focus is more frequent.

BINOCULAR VISION AND THE TREATMENT OF SQUINT

A very great deal of interest has been taken within recent years in the subject of squint and its treatment by orthoptic exercises, partly owing to renewed research which has been done upon the question and partly because of the ingenuity shown by the makers of instruments which despite their complexity, render training much more easy and scientific than hitherto. The whole subject has been reviewed in *Binocular Vision and the Modern Treatment of Squint*,[3] by Dr. MARGARET DOBSON. The book does not pretend to discuss at length the physiology of binocular vision—it deals essentially with the clinical and practical aspects of the subject. There are, in fact, one or two small slips in such physiology as is discussed, as in the definition of corresponding points, and so on. But of practical information the book contains a very great deal, and much of it, which is presented in a most concise form, is not easy of access elsewhere.

The great importance of early treatment in cases of squint is emphasized, for from the earliest time at which the deformity is noticed something pragmatic can be done. For intensive treatment the most suitable age is from 2 to 6 years: the older the patient the less likelihood of training being successful. The important point is stressed that, unless diplopia can be demonstrated, orthoptic training will be useless; but in suitable cases training should be carried on step by step through the establishment of simultaneous macular perception, true fusion, and stereoscopic vision. Moreover, the adequate correction of refractive errors is rightly emphasized, especially those of astigmatism, while we are glad to see stress laid upon the correction by vertical relieving prisms of the frequent complication of hyperphoria, which so often stands in the way of a correction of the horizontal deviation.

One cannot but feel, however, on reading the book that the author has to some extent been carried away by the enthusiasm and ingenuity of instrument makers. A vast quantity of apparatus is described, some of it simple and some of it complicated: the synoptoscope, the keratometer, the training stereoscope, the variable prism stereoscope, the phonoscope, the cheiroscope, the binoculoscope, the refracting unit, and so on—practically all of them based on the simple principles enunciated long ago by Javal. It is not to be thought that these instruments are useless, but we cannot think that all this multiplication of mechanical aids is necessary. Let us hope it is merely a phase in the modern development of a method of treatment which itself is essentially simple and can be simply and efficiently carried out.

[3] *Binocular Vision and the Modern Treatment of Squint*. By Margaret Dobson, M.D. London: H. Milford, Oxford University Press. 1933. (Pp. 107; 32 figures. 10s. 6d. net.)

DIPHTHERIA IMMUNIZATION

In *Diphtheria Immunization*[4] Dr. J. GREENWOOD WILSON has collected the literature recommending immunization against diphtheria which was issued to the public of Dewsbury, and the counter-propaganda by the various " anti " writers opposed to immunization in any form. The author, with the powerful support of Dr. Graham Forbes, carried on an able contest in the local press and elsewhere. Those who are familiar with the methods of controversy used by opponents of the kind will commend Dr. Wilson; medical officers of health liable to be attacked in the same manner will find value in a study of the controversy. Dr. Wilson makes the interesting suggestion that immunization should be offered through the agency of the general practitioner. We understand that a modified plan is being considered in certain areas in England: the practitioner would inject the prophylactic and a practitioner with special experience would carry out the final test. The New York campaign enlisted the aid of private practitioners, but apparently the majority of injections were made by the full-time staff. Different countries adopt different methods. Compulsory immunization, we are told, is in operation in at least some parts of the Soviet Republic, and a recent press message foreshadows a similar procedure in Germany. The spectacle of two adjoining States pursuing somewhat dissimilar political ideals but enforcing compulsory immunization gives thought to the philosophically minded.

MEMOIRS OF SIR ROBERT SIBBALD

Mr. FRANCIS PAGET HETT has done good service by issuing Sir Robert Sibbald's autobiography[5] because the edition printed in 1833 has long been difficult to obtain. The original manuscript has disappeared, though it was sold at Sotheby's to Mr. Quaritch as lately as June, 1893. Mr. Hett has therefore been obliged to use a certified copy made for the Advocates' Library in 1805, which is now in the National Library of Scotland. He has prefixed to the Life a refutation of the charge against Sir Robert of forging the *Heads of a Conversation betwixt the Famous Poet Ben Jonson and William Drummond of Hawthornden, January 1619*. This charge, which is of long standing, has reopened a pretty little literary quarrel in which Mr. C. L. Stainer and Mr. Hett are taking a part. For the present Mr. Hett seems to be winning.

Robert Sibbald (1641–1722) was a person to whom Scottish medicine owes much. He was educated at Leyden, and was one of the founders of the Edinburgh

[4] *Diphtheria Immunization*. By J. Greenwood Wilson, M.D., F.R.C.P., D.P.H. Dewsbury: Joseph Ward and Co. 1933. (Pp. 117. 2s. 6d.)

[5] *The Memoirs of Sir Robert Sibbald (1641–1722)*. By Francis Paget Hett. Edited with an Introduction and a Refutation of the Charge against Sir Robert Sibbald on Forging Ben Jonson's *Conversations*. London: H. Milford. Oxford University Press. 1933. (Pp. 107; 2 figures. 10s. 6d. net.)

school of medicine, which afterwards attained a world-wide celebrity. He was instrumental in obtaining a Charter for the College of Physicians in 1681, and received the honour of knighthood as a reward. He was President of the College in 1684, and during his presidency the first Edinburgh Pharmacopoeia was compiled, although it was not published until many years later. He was, too, the first Professor of Physic in the University of Edinburgh. For the rest he was well known as an antiquary, as an historian, and as a collector of books and portraits. He held the post of Geographer Royal for Scotland. At a time when religious feeling ran high in Scotland he was suddenly converted to the Church of Rome, and almost as quickly "went no more to the Popish service, but removed to the country and took the sacrament according to the way of the Church of England and kept constantly my parish church." Many years afterwards, when Boswell had bought the memoirs from his uncle, Mrs. Thrale said she thought such details should not be published. Dr. Johnson, urged no doubt by a spirit of contradiction, replied, "Nay, it is an honest picture of human nature." During a visit to London in 1686 Sibbald was admitted a Fellow of the Royal College of Physicians. He gives an interesting account of the ceremony, and says that in the course of it he swore not to procure abortion, not to give poison, and not to speak of poisonous things in promiscuous company.

THEORETICAL BIOLOGY

Modern Theories of Development,[6] by LUDWIG VON BERTALANFFY, translated by J. H. Woodger, is an essay in theoretical biology. The author sees what he describes as a crisis in the science, rich as it is in observational and experimental data he holds it to be poor in general conceptions, and that from this poverty it can only be rescued by theoretical clarification. Woodger, in his well-known work *Biological Principles*, has expressed much the same view, and has shown how wanting in logical sequence are some of the hypothetical views put forward by biologists who have attempted generalization. The basis of von Bertalanffy's view is that life in all its manifestations has the form of a system, an organismal system, of which neither the mechanistic nor the vitalistic theory has been able to give a complete account. This is a view towards the construction of which many have contributed. The task for biology is to give an account of the essential features which belong to organization, and to regard this as a problem for scientific study rather than for metaphysical speculation. Not that the author considers that biology has no need for the use of hypothesis, but for its use as constructed and employed by science, not as constructed and employed by rationalist philosophy.

The data and theories of development are discussed here from the "systemic" point of view, and it is sought to show what this point of view has to offer as a contribution towards the interpretation of this vital activity. In one chapter an interesting attempt is made to reduce certain of the data to strict logistic expression in the manner favoured by Woodger. What advantage would accrue to biology by such a method is a question worth pursuit. The translation presents to the English reader an outline of the German contribution to the attempt, which is engaging the attention of all biological schools, to correlate the science with others and restate its own fundamental problems. Dr. Woodger has adapted as well as translated the book, and has laid all students of biology under obligation by the manner in which he has done his share.

[6] *Modern Theories of Development*. By Ludwig von Bertalanffy. Translated and adapted by J. H. Woodger. London: H. Milford, Oxford University Press. 1933. (Pp. vii + 204. 8s. 6d. net.)

Notes on Books

The seven original articles in the May instalment of the *Annals of Medical History*[7] fall into two groups, those of ancient and those of quite modern times, with an intermediate one on the sweating sickness in the fifteenth and sixteenth centuries by Dr. M. B. Shaw of Baltimore, who identifies it with "morbus cardiacus" described by Celsus, Galen, Oribasius and others, and refers to its name "the posting sickness" in the 1528 epidemic on account of its rapid spread. There are two articles on Arabian medicine: the memoirs of Usāmah, a warrior, poet, and man of letters with a practical interest in medicine, contain, as Drs. D. C. Munro and Haagensen show by numerous extracts, many curious cases, such as the cure of ascites by a would-be suicide who slashed his abdomen with a razor. In his account of Arabian medicine at Salerno and Montpellier Dr. Lufti M. Sa'di of Detroit argues that Constantine the African, also called the "Miracle man from the Orient," was really an Arab. Dr. Kate C. Hurd-Mead continues her introduction to the history of women in medicine in a well-illustrated account of the medical women of Rome and Italy, among whom Cleopatra, Aspasia, and Lais are included. Of the three modern historical articles the first is that on Dr. Willard Parker (1800–84), whose name is familiar in the Willard Parker Hospital for Infectious Diseases in New York; Dr. Ruhräh, who reproduces part of his hero's diary and quotes the following appreciation: "He could not be called a learned man, but he was what some learned men never become—a wise man." Dr. M. B. Wesson's account of G. E. Goodfellow (1855–1910), frontier surgeon and soldier, describes him as a pioneer in plastic surgery, complete prostatectomy (1891), and the open-air treatment of tuberculosis. Dr. W. F. von Oettinger traces the earliest suggestion of the use of cocaine for local anaesthesia to Moréno y Maiz, surgeon-in-chief of the Peruvian Army, who in 1868 published a monograph on the subject. Among the book reviews is one of the *Book of Manchester*, a memento of the British Medical Association's meeting in 1929.

After ten reprints of *Symptom Diagnosis*,[8] by BARTON and YATER, the first edition of which was published in 1927, a second edition has appeared, and the popularity of this book of reference is now obvious. The general arrangement of the volume is unaltered, but various details have been touched up and certain new insertions have been made in order to bring the information up to date. Once the method of using it has been grasped it is easy to turn up the pages which deal with any particular symptom, whether regional or general, and by following the cross-references to gain a survey of the clinical possibilities.

The second series of papers on Infectious Diseases[9] by Professor P. NOBÉCOURT contains twenty lectures reprinted from various journals. Six of these deal with measles, one with whooping-cough, two with pneumococcal infections, two with streptococcal septicaemia, one with erysipelas during the first three months of life, one with infective purpura and agranulocytosis, two with meningococcal meningitis and its treatment, one with *B. influenzae* meningitis in infancy, three with poliomyelitis, and one with quartan malaria following transfusion of blood. The aspects of measles which the author discusses are the statistics and clinical features of the disease during the first year of life, acute pulmonary oedema and capillary bronchitis as complications, the association of measles with tuberculosis, the difficulties of diagnosis between simple and tuberculous bronchopneumonia, and the association of measles with scarlet

[7] *Annals of Medical History*. Vol. v, No. 3, May, 1933. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. (Pp. 205–314; illustrated. Subscription for volume of six numbers, £3 8s. 6d.)

[8] *Symptom Diagnosis*. By W. M. Barton, A.M., M.D., F.A.C.P., and W. M. Yater, A.B., M.D., M.S., F.A.C.P. Second edition. New York and London: D. Appleton and Co. 1933. (Pp. 851. 45s. net.)

[9] *Clinique médicale des Enfants: Maladies infectieuses*. Deuxième série. Par Professeur P. Nobécourt. Paris: Masson et Cie. 1933. (Pp. xv + 430; 139 figures. 60 fr.)

fever. The lectures on poliomyelitis are devoted to treatment by Pettit's serum, the aetiology, symptomatology, and treatment of the paraplegic form, and the meningeal forms of the disease. An excellent index, unfortunately still an unusual feature in French textbooks, is appended.

We have received from the International Union for the Scientific Investigation of Population Problems a bibliography of works dealing with differential fertility edited by Mr. ELDON MOORE[10] This purports to cover works in English from 1798 to 1931, those in French from 1838 to 1929, those in German from 1919 to 1930. The work includes more than 1,100 references, and should prove of value to students, although the plan of compilation is open to criticism. Thus, only the first edition of Malthus's famous "Essay" is entered, although the later editions are those of most importance to the statistical worker, while little heed is paid to the controversial writings (such as Sadler's once famous book) of Malthus's epoch. The French bibliography is largely confined to Belgian work. Summaries (in German) are appended to the German titles.

[10] *A Bibliography of Differential Fertility*. Edinburgh: Commission II of the International Union for the Scientific Investigation of Population Problems. 1933. (Pp. 97. 2s. net.)

Preparations and Appliances

A SURGICAL INSTRUMENT TRAY

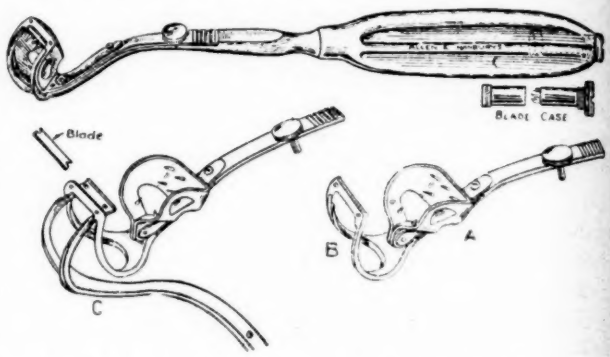
Messrs. C. J. Hewlett and Son, Ltd. (35–42, Charlotte Street, E.C.2), have put on the market the instrument tray illustrated herewith, which possesses several advantages over the ordinary type. It is made of best white porcelain—size 16 by 12 by 2½ inches—with rounded corners and sloping sides, and is thus easily washed and sterilized. Moulded partitions divide the tray into five compartments, so that instruments may be kept

separate, the smaller divisions being particularly useful for surgical needles. In the event of the disinfecting solution being cloudy the instruments required can easily be found, as the sloping sides cause them to roll to the centre of the compartment, thus obviating the need for groping about the dish. Further, the separate compartments enable the tray to be used for both wet and dry dressings. The sunk handles allow of easy and safe carrying. The price of the tray is 21s.

IMPROVED ADENOTOME WITH REMOVABLE BLADES

Mr. O. POPPER, F.R.C.S.Ed. (Johannesburg), writes: Early in 1931 I described a simplified technique for the removal of adenoids (*Journal*, January 17th, 1931, p. 92). A point I stressed as a matter of supreme importance was the sharpness of the blade. It is gratifying to know that this view has been upheld by my colleagues, in that so great a number of them have acquired the adenotome I have designed with removable blades; the latter are made from ordinary commercial razor blades (wafer type), being spring steel of correct temper, and having and retaining a superb cutting edge. The demand for this type of instrument prompted me to redesign it along more robust lines than those of the experimental model published in my paper. This was done very soon after my paper appeared. The new model replaced the older one over two years ago, although it is published now for the first time. In the original model the small blade was secured by three flanges, which, owing to their delicate structure, were liable to damage, and also made the instrument very expensive.

The new method of blade fixation is illustrated. Flanges and all projecting parts are abandoned. It is simpler, and holds the blade with absolute security. The blade is fixed by means of a metal loop A B. To this is attached a specially designed cage (shown open) for the reception of the adenoids when they have been severed; also a screw which is permanently attached, so that it cannot be lost. The blade is placed on its bedplate in the adenotome (diagram C). Two studs hold its recessed ends in position. These studs fit into corresponding holes of the loop A B. The loop A B is now passed over C (as shown in the diagram) and fixed by means of the screw. The cage is then closed. The instrument is now ready for use. The studs will be in their respective holes,



and the blade is firmly pressed against the bedplate by the scissors-like action of A B against C. As the elasticity of A B is utilized to exert pressure it is wise to pull back the cage before removing loop A B when inserting a new blade: the fine workmanship on this portion might otherwise become damaged.

In making these instruments Messrs. Allen and Hanburys have, as usual, carried out a piece of high-class precision workmanship. This does not call for any special comment, except that as I specified stainless steel throughout (which it is difficult to work to limits of error necessary where small parts must fit with exactness) I should like to acknowledge my indebtedness to them, especially to Mr. Baldock and his technical staff. Other leading British instrument makers have followed suit. This instrument is not protected in any way by patents or registration, and certain cheaper models from the Continent have come to my notice. They have faithfully followed the design, but I have no hesitation in recommending the British article on account of the better workmanship, metal—the home model is "stainless"—and robustness.

This device was fitted originally only to the adenotome of my own design (illustrated), for which I have claimed that it simplifies the operation, because the edge of the blade is in line with the axis of the instrument and thus converts the operation from an indirect into a direct cutting manœuvre. No knack is required. In response to request, however, other adenotomes, especially that of Sir StClair Thomson, are available with my removable blade-fitting. With care I find that one blade will do for about twenty cases. It should be carefully dried after each session, and a drop of oil should be run along the edge. New blades are cheap, and obtainable anywhere. Any metal worker will cut down the ordinary blades to the required size.

The cartridge, which contains spare blades, and which fits into the handle, should be removed before the adenotome is sterilized. This will avoid the spare blades becoming rusty.

CRYSTALLINE INSULIN

Insulin is now generally regarded as a definite chemical substance of constant physiological activity. After being obtained in a crystalline form by Abel it was shown by different workers that specimens of crystalline insulin prepared by different methods invariably have the same degree of physiological activity. For some years past Messrs. Burroughs Wellcome and Co. have supplied crystalline insulin to research workers.

CHARKAOLIN

Messrs Allen and Hanburys Ltd. prepare a combination of highly activated vegetable charcoal with "osmo" kaolin under the name "charkaolin" for the treatment of intestinal infections characterized by abnormal fermentation and the formation of toxins. It is prepared in two forms—as granules and as tablets. Both disintegrate rapidly in water and form a fine suspension, which is quite easy to take and is tasteless, though charkaolin in bulk has a slightly sweet flavour.

British Medical Journal

SATURDAY, JULY 29th, 1933

THE PRESIDENT'S ADDRESS

The address given at Dublin by the new President of the British Medical Association happily combines the feelings of the patriotic Irishman, the harvest of experience of a teacher in a great medical school, and a glowing tribute to the work which the Association has done in and for Ireland, with a reminder of certain aspects of the evolution of the Association in which Ireland took a leading part. Ireland is probably less known to many on this side of St. George's Channel than are some of the Continental countries, and it is certain that some of the remarks of the President will come as a surprise even to many of those who think themselves acquainted with the Association's history. Professor Moorhead brings out in a striking manner the success which has always attended the meetings in Ireland. So long ago as 1867, when the membership was only 3,000, no fewer than 400 attended the Dublin meeting under the presidency of the illustrious Stokes; twelve years later at Cork the attendance reached 600; while at Belfast in 1909 it was nearly 1,500. These are remarkable figures which testify to the drawing capacity of Ireland by reason of its age-long reputation for hospitality, and the fame of its medical schools with their succession of outstanding figures in the world of medicine. Much has happened since those early days, but nothing to impair these attractions, which, together with the efforts of an enthusiastic and hard-working executive and the cordial co-operation of the Government and civic authorities, should ensure that this week's proceedings will be worthy of Ireland's past B.M.A. record.

The President's account of Ireland's influence on the development of the Association is admirably relevant and extremely interesting. As he points out, the Association in its earliest years was naturally much occupied by problems of organization and medical politics, but Dublin in 1867 inaugurated a new departure which has left an indelible impression on the work of the Association, for it was then that separate Scientific Sections were established. Dublin this year, with its sixteen Sections, each presided over by an authority in his subject, may well feel proud that it was the pioneer in a development which is now the outstanding feature of our Annual Meetings. There may be something short of unanimity of enthusiasm as to the second great change in medical affairs which began in the same year. The President says that that meeting gave an enormous stimulus to public health services. The doctor, who is essentially and necessarily an individualist, is sometimes inclined to wonder whether all this growth of publicly provided medicine is not weakening the sense of personal responsibility, and whether the "revolution" may not have gone too far. But the triumphs of State medicine are writ large on modern history, and for better or worse the State continues to take an ever-increasing responsibility for the health of the community. The practitioner is no longer isolated. He is a member of a team in which he is performing certainly a "new," though there may be doubts as to whether it is a "more effective," function. Are we to consider Professor Moorhead an optimist or the reverse when he looks forward to the time "when the State will compel everybody to obey" the simple laws of health? But here we touch a tempting field of controversy, by no means wholely medical, and this is not the moment to follow it up.

The President's remarks on the medical curriculum are most timely, coming as they do when the Association has entered on an examination of the whole subject. His approving quotation of Locke's dictum that the teacher's duty is "to give the student a relish for knowledge and a scientific outlook" will seem to many to go to the root of the matter. He acknowledges the difficulties confronting the General Medical Council, and agrees that "to instil a broad knowledge of principle" while endeavouring to satisfy teachers who become more and more specialized is a task which demands not only a full knowledge of the requirements of the student but the exercise of wise statesmanship. And, after all, a great deal depends on the teacher, as the President clearly recognizes in a passage which will strike a responsive chord in the heart of everyone who has experienced the inspiration that springs from the real educator—the man who "knows what to eliminate" and can "indicate the paths of research and of inquiry which lie open to those who are eager." This part of the address deserves the respect and attention due to one who speaks not only with the responsibility of a great office, but with the knowledge born of long experience as a teacher.

The tribute to the Association for its work for the Irish dispensary doctor is generous and, we think, well deserved. There are still, happily, among us many who remember the report of Surgeon General Evatt in 1903, in which he described in scathing language a state of things which seemed almost inconceivable even to those well acquainted with the demoralizing and sordid atmosphere of the worst kind of contract practice on this side of the Channel. When we read the President's testimony to the greatly improved conditions in the dispensary system of the Irish Free State the Association may well share his satisfaction and rejoice that it had so great a part in exposing the evils of the old system and in preparing the way for the new.

Professor Moorhead reminds us that in many respects medical administration in Ireland differs from that of Great Britain, but he sees clearly that there is much ground that we all share in common. He believes in the essential unity of the medical profession in these islands and in its need for one strong organization in whose trials, experience, and benefits we can all share.

His significant references to the Irish Medical Association and its danger of overlapping with the British Medical Association call attention to a problem whose solution is overdue. The situation in the Free State has many points of resemblance to that which existed in South Africa in 1925, and a solution which satisfied both the ardent South African nationalist and the convinced believer in the Imperial idea embodied in the B.M.A. may well prove a precedent for action in Ireland, where the existence of two friendly but nevertheless competing medical bodies has manifest disadvantages both to the profession and to the public.

The address leaves the reader with a feeling of admiration for certain qualities in the President's fellow countrymen, the first of which seems more in character than the second. The audacity of an invitation to hold an Annual Meeting in Ireland when the total Irish membership was *one* was truly admirable! Not less so was the patient endurance of the company which attended the annual dinner at Cork at which there were twelve toasts and twenty-eight speeches—and it must be remembered that the President of that year was nearly 80 years of age, and he, at least, had to sit out the whole proceedings! The Association, as this address shows, has reason to be grateful to Ireland. That feeling would be best expressed and best reciprocated if, as a result of the present meeting and the eloquent address of the President, the B.M.A. should become more and more "a symbol of the union of hearts between members of the medical profession in Great Britain and Ireland, a union which in spite of political changes and developments has never since been broken and remains steadfast to-day."

PHYSIOLOGY OF THE SPLEEN

The function of the spleen is in many respects still a problem, although great advances have been made since the days when this organ was considered as the seat of hypochondria or of hysteria, or when it was removed to improve the stamina of runners. Since its scientific investigation has begun many functions have been attributed to it, among which we may select as outstanding, blood formation, haemolysis, bone marrow influence, influence on the gastro-intestinal tract, and anti-infective action. On the questions of the haemolytic function of the spleen, and its relation to the metabolism of iron and to gastric and pancreatic secretion, opinion is still very divided. In certain conditions —for example, paroxysmal haemoglobinuria and intravascular haemolysis after transfusion—the spleen becomes enlarged, but this is due to its acting as a kind of scavenger for the products of haemolysis, the latter having been brought about elsewhere—for example, in the peripheral tissues. In this sense the spleen may be regarded as a secondary haemolytic organ. The most striking advances in our knowledge have been made by Barcroft and his pupils, who have demonstrated that this organ acts as a reservoir for blood corpuscles, these being liberated into the general circulation as the need for them arises. The sudden release of these stored cells in certain circumstances can produce an acute polycythaemia. The importance of this function seems to vary in different species; in man it appears to be of relatively little importance. E. Lauda,[1] in a review of this matter, considers that other organs may also be concerned with the storage of red cells. Exercise in the case of dogs, cats, rats, horses, etc., leads to an acute polycythaemia, which is accompanied by a demonstrable diminution in splenic volume. This also occurs in acute asphyxia, after haemorrhage, at diminished atmospheric pressures, after the injection of adrenaline, ephedrine, or pituitrin, and during psychical disturbances. This polycythaemia still occurs, but to a very greatly diminished extent, in dogs without spleens, which indicates that other depots must exist. Lauda records that the increase in red blood cells may represent 7 to 40 per cent. of the initial count—a striking effect for an organ of such relatively small dimensions as a dog's spleen. In the horse, increases up to 60 per cent. are on record. Experiments on the contracting exteriorized spleen (Barcroft's technique) have shown that the blood leaving the organ may consist of 90 per cent. cells and only 10 per cent. fluid.

Attention is drawn by Lauda to the fact that in cases of infection there is, in general, a splenomegalic reaction, when the infective agent circulates in the blood, whilst when the infective agent remains localized this reaction does not occur. This supports the view that the spleen exerts a general mechanism of defence for the organism as a whole. As to whether the spleen produces immune bodies no settled opinion has been reached. The fact that dogs without spleens, when injected with anthrax, give a much greater mortality rate than normal dogs was shown strikingly by Burdach. More striking, however, is the fact that rats, carrying the organism *Bartonella muris rati* without any apparent symptoms if the spleen is intact, soon develop a fatal anaemia if the spleen is removed. Whether this phenomenon is due to the development of antibodies or to high splenic phagocytosis is uncertain, but Lauda and his co-workers conclude that it is due rather to some kind of internal secretion and perhaps also organ specific substances, which act as protectors against disease processes. That some peculiar relation exists between the spleen and the bone marrow is shown by the appearance of "Jolly body red cells" after splenectomy. It can be shown in a parabiosis experiment between a normal animal and one that has had its spleen removed that no Jolly bodies appear in the latter's blood, so that a humoral mechanism seems probable. Efforts to show a correlation between the spleen and the endocrine system cannot be said to have been very successful. Recently, results have been obtained by T. Miwa[2] which, it is claimed, demonstrate an antagonism between the "splenic hormone" and that of the parathyroids—that is, that extracts of spleen lower serum calcium and that splenectomy raises it.

[1] Lauda: *Wien. klin. Woch.*, April 21st, 1933.
[2] Keijo: *Journ. of Med.*, September 30th, 1932.

It must be confessed that these results are to be considered with some reserve.

Thus the present position of our knowledge of the physiology of the spleen resolves itself into three well-established departments: (1) storage of red blood corpuscles; (2) destruction of red cells, either directly by haemolysis or by removing cell remains (reticulo-endothelial function); (3) some protective action against certain infections. All other alleged functions must await more rigorous experimental demonstration.

"DUBLIN, 1933"

Irish hospitality has long been a proverb, and in the *Book of Dublin*, produced by the Irish Tourist Association and presented in a charming "B.M.A." cover to every member attending the Annual Meeting, the country is described as "The Ireland of Welcomes." But, even so, the warmth and the volume of the hospitality afforded took most visitors by surprise. Any lingering misgiving that anyone may have felt as to the quality of the reception in wait for the British Medical Association disappeared as an absurdity the moment he set foot on Eden Quay. To make comparisons between Annual Meetings is invidious, because the organizers of each have to wrestle with established circumstances and make the best of them, but it may be said with confidence that never have the innumerable details of organization received more careful attention. The long labours of more than a dozen local committees, and especially of the two honorary general secretaries, Dr. J. P. Shanley and Professor J. W. Bigger, have had their reward in a meeting which it is already safe to say will long be remembered as one of the most successful in the recent history of the Association. To organize a meeting after the Centenary of last year in London—especially a meeting which demanded from the very large proportion of the visitors a sea crossing—needed great care if it was not to be rather an anticlimax; but the 101st Annual Meeting is proving no unworthy successor of the 100th. This result is due very largely to the hosts, first of all the Leinster Branch and the members of the local medical profession, the civic, ecclesiastical, and university authorities, prominent persons in Dublin's social life, commercial firms, clubs and other associations, and the general body of Dublin citizens.

The 1933 Annual Meeting has been particularly fortunate in its locations. The sessions of the Representative Body were held in the splendid premises of the Royal Dublin Society—a society founded two hundred years ago for the promotion of husbandry and the useful arts and sciences. This place of meeting had the disadvantage of being a couple of miles from the centre of the city, but for roominess and comfort the Representative Body has seldom done its business under better conditions. The large hall—really the library of the society, with attractive volumes on its shelves at which few representatives had time even to glance—was also excellent from the point of view of acoustics, and although at the demand of some back-benchers microphone and amplifiers were installed at a late stage of the meeting, very few speakers were badly heard even without this aid. The grounds outside, where the official photograph was taken, are said to be those in which that typical Irish carnival, Donnybrook Fair, used to be held, but they are now famous as the scene of the spectacular Dublin Horse Show, the greatest show of its kind in the world. The reception room is situated at the Mansion House, the official residence of the Lord Mayor, a building of handsome design and the scene of many historic events, including the signing of the truce of 1921 bringing the conflict between the British and Irish forces to an end. Abundant room was provided here for members who wished to rest or write, as well as for the necessary purposes of registration and the securing of tickets. In a large circular hall leading from the reception room the Annual Exhibition of surgical instruments and appliances, drugs, and foods is housed. The exhibition, as could only be expected, is rather smaller than in other years; but some sixty firms have brought together a representative collection of wares. The scientific meetings are divided between Trinity College and University College, places expressive of Dublin's culture, where ample space has been found for sixteen sections.

The representatives stuck closely to business; indeed, at one period of the meeting they were far behind on their schedule, and there was dark talk of evening sittings and the forfeiture of entertainments. But other members as well as all the ladies had the choice of many pleasant occupations in the shape of sight-seeing tours and afternoon parties. Dublin is not a very easy city to find one's way about, but the path of the stranger was made straight by the Automobile Association and the Royal Irish Automobile Club, as well as by the ever-courteous police. But it is a city environed by picturesque suburbs and beautiful resorts, as well as having the lure of historic shrines, and arrangements were made whereby as much as possible should be visited. There were special excursions to beauty spots in the counties of Wicklow and Kildare. The Irish skies, though often grey, were kind, and, on the Sunday, brilliant. On the Saturday afternoon about 600 guests attended a garden party at Runnymede, by the kind invitation of Mr. and Mrs. Henry Meade, and among those present were the Vice-President of the Executive Council and other Ministers, several members of the diplomatic corps in Dublin and consular representatives, the Lord Mayor and Lady Mayoress, and the retiring and in-coming Presidents of the Association, Lord Dawson and Professor Moorhead. A very enjoyable time was spent in the picturesque grounds. On Saturday evening a reception and dance was given by Professor Moorhead and the Local Executive Committee at Lord Iveagh's house, St. Stephen's Green, where the ladies' club is situated—a beautiful building with a succession of lawns in parkland at the rear. The President and Mrs. Moorhead spent an hour and a half in receiving a constant stream of guests, after which a concert was given, followed by dancing. The programme for the remaining days of the meeting bids

fair to tire out the members, but nothing, apparently, exhausts the hospitality of this fascinating city.

The Press has joined in the welcome to the Association, and the Dublin newspapers have given adequate and well-balanced accounts of the proceedings. A special illustrated supplement to the *Irish Times* of July 25th, headed "Health and Hygiene," was circulated in advance to many members of the Representative Body. To this Professor Moorhead contributed an introductory article on progress in medicine and surgery since the Association last met in Dublin in 1887. The *Irish Independent*, after pointing out the high place of the Irish capital in the history of medicine and surgery, remarks that public opinion in Ireland is beginning to be educated in matters of health and hygiene. The public health system, it states, has been almost reorganized of recent years, notably by the appointment of county medical officers of health, the setting up of school medical services, and the advancement of preventive medicine generally. "The conference of the British Medical Association will quicken public interest in these matters."

On the afternoon of Sunday, July 23rd, many leading members of the Association were entertained at a garden party given in their honour by the Minister for Local Government and Health and Mrs. Seán O'Kelly at their home in Anglesea Road, and were introduced to the President of the Executive Council, Mr. de Valera, and members of his Cabinet and their wives. The guests on this agreeable social occasion included also the Papal Nuncio and other diplomatic representatives.

By noon on Wednesday, July 26th, nearly 1,200 members had registered at the Reception Room in Dublin.

HEREDITARY BLINDNESS

The Prevention of Blindness Committee of the Union of Counties Association for the Blind has issued a report on hereditary blindness.[1] It is pointed out that a large number of investigations into hereditary blindness, made over a long period of years, have been published in scientific journals, both in this country and abroad. Some of this data obtained has been investigated and analysed by genetic experts, and reports have been issued by the Galton Eugenics Laboratory. But as the data are being obtained from too selected a field it cannot be estimated with any degree of accuracy to what extent blindness, as a whole, could be prevented by the limitation of parenthood in individual cases. It is known that a man or woman suffering from retinitis pigmentosa may have become the progenitor of some forty cases of blindness in subsequent generations, but it is not known what proportion of sufferers marry with no ill results to their descendants. The committee puts forward a form for use in investigating cases of blindness with a view to obtaining useful pedigrees. There are diseases of the eye which result in defective vision and others which cause blindness. Taking both groups it may be held by the eugenist: (*a*) That any man or woman who has had aniridia, congenital cataract, glioma of the retina, hereditary opacity of the cornea or ectopia lentis, microphthalmos, or retinitis pigmentosa, and of whom either parent has been similarly affected, is likely to transmit the defect and should abstain from parenthood. (*b*) That any normal parents who have more than one child affected with one of the above-mentioned diseases, or with buphthalmos or total colour-blindness should have no more children, and such children as they have should abstain from parenthood—whether they themselves are affected or not. Even if the parenthood of such children does not lead at once to the manifest reproduction of the disease, it inevitably adds to the latent defect in the population, which becomes manifest when two people carrying such latent defect marry and have children. (*c*) That if, in all stocks in which Leber's disease (hereditary optic atrophy) has occurred more than once, the sisters of affected males were to abstain from parenthood, the disease would be almost exterminated, except for sporadic cases of no genetic significance. In general, there is no risk to the descendants of men who are suffering from Leber's disease; the instances in which they transmit the disease are very rare, but should be borne in mind, and if one such case in a family has occurred all other affected members of that stock should be regarded as liable to transmit. The report includes a bibliography.

[1] Prevention of Blindness Committee, 66, Victoria Street, S.W.1.

AN EIGHTEENTH CENTURY OBSTETRICIAN

On July 21st, at Holme Hall, Bakewell, there was exhibited a tablet provided by British obstetricians to commemorate the bicentenary of the birth of Thomas Denman, M.D. This tablet (the suggestion for it came from Dr. Miles Phillips) is to be placed in the parish church. In an address on Denman's life and work Dr. Herbert Spencer said that by his fiftieth year he was the most distinguished and esteemed of British obstetricians, and maintained his pre-eminence till his death at the age of 82. Thomas Denman, son of an apothecary, was born at Bakewell on June 27th, 1733; his son Thomas (afterwards Lord Denman of Dovedale) became Lord Chief Justice of England, and his twin daughters both married distinguished physicians, Sir Richard Croft and Dr. Matthew Baillie. In an autobiographical memoir written in 1779, which appeared posthumously in the seventh edition of his *Introduction to Midwifery* (1832), with some additions by Matthew Baillie, he divided his life into three periods—his home life till the age of 21; his nine years' service as a naval surgeon; and his life as an obstetrician from the age of 30 till his death. His father having died in 1752, Thomas assisted his brother Joseph in the practice of an apothecary to which he had succeeded, and two years later became a student at St. George's Hospital. The money he had brought with him soon ran out, and needing employment for his immediate support, he passed as surgeon's mate to a ship "of sixth rate," and served on ships engaged in the wars with France and Spain, a period full of adventure and not free from danger. During the earlier part of his naval career he was occasionally in financial straits, and even when his share of prize-money put him in funds he was apt to spend it during shore leave. Gradually, however, he learned to be frugal and to steady his naturally impetuous disposition. Returning to Bakewell in 1763,

he determined to apply himself to the study of anatomy and midwifery. After a short unsuccessful attempt to make a practice at Winchester he came to London, obtained the M.D. degree of Aberdeen, and commenced practice, at first in rooms and then in a small house off Haymarket. Thenceforward his practice and position as an obstetrician rapidly increased, and in 1769 he was appointed man-midwife to the Middlesex Hospital, the first British general hospital to have lying-in wards. By giving lectures on midwifery he got upwards of £300 a year, and in 1770 he was earning £650 a year and had removed to a large house in Queen Street, Golden Square. Denman later moved to Old Burlington Street, and finally to Mount Street. He was the first to obtain the diploma of licentiate in midwifery instituted by the Royal College of Physicians in 1783. The death of William Hunter that year raised him at once into the highest practice, and placed him at the head of his branch of the profession. Some of his writings gained wide popularity, and were translated into foreign languages. Besides an admirable historical account of the work of ancient and contemporary writers on obstetrics, he made many original observations, and introduced new methods of treatment which have stood the test of time. His advocacy of patience and gentleness in the management of normal labour was as valuable then as now. Denman's literary reputation rests on his *Aphorisms*, which maintained its popularity for more than fifty years, and on his *Introduction to the Practice of Midwifery*, the quarto edition of which, Dr. Spencer said, is one of the most splendid works on the subject in the English language, whether regarded from the point of view of format, paper, printing, and illustrations, the learning and knowledge it exhibits, or the ordered, lucid, and judicial manner in which that knowledge is presented.

POLIOMYELITIS VIRUS

In an interesting paper in the *Journal of Laboratory and Clinical Medicine* for March Eberson and Mossmann report the results of attempts to cultivate the virus of poliomyelitis *in vitro*. With the use of a culture medium consisting of sheep's brain suspended in a peptone-free veal broth, Berkefeld N filtrates from the nervous tissue of monkeys dead of experimental poliomyelitis were incubated under anaerobic conditions. Media so inoculated developed within a week a turbidity which was found to be due to the presence of a particulate "organism" varying in diameter from 0.05 to 0.2 of a micron, distributed in pairs, small clusters, and in densely packed masses. These bodies, believed to be bacteria, stained best with Wright's stain, and were weakly Gram-positive. Subcultures reproduced the same picture, and up to the present twenty successive subplants have been successfully achieved. Inoculation into monkeys of "organisms" obtained from washed and unwashed cultures caused the animals to develop the symptoms and pathological effects of experimental poliomyelitis. Berkefeld N filtrates from a suspension of the nervous tissue of such animals were capable of reproducing the disease in normal monkeys, and from these was again obtained a virus with identical properties of filterability and pathogenicity, which was again capable of cultivation in the special medium. Successful experiments were carried out with culture of the third to the thirteenth subplants, representing a dilution of the original material cultivated of 2×10^{-7} and 2×10^{-27} respectively. Control experiments with heated cultures gave negative results, as did cultures originally inoculated with herpes and vaccinia virus. Serum from monkeys developing poliomyelitis as a result of inoculation with the cultures was found to possess neutralizing power against active virus suspensions *in vitro*, and monkeys recovering from the culture-induced disease (three in number) were found to be immune to direct inoculation of virus into the brain. Inoculation of rabbits, guinea-pigs, and mice was uniformly unsuccessful. From these interesting and well-controlled experiments the authors draw two distinct conclusions. First, that they have been successful in cultivating the virus of poliomyelitis in twenty serial subplants by the use of their special culture medium, and that these cultures are capable of reproducing the disease clinically, pathologically, and serologically in monkeys under conditions which exclude the effective "carry over" of the original virus. On the evidence presented their claim appears to be well founded, and confirmation of their results will be awaited with general interest, for if it is forthcoming a notable advance in our knowledge of the disease will have been achieved. In the second place the authors contend that the bodies seen in the cultures, which they believe to be bacteria, constitute one phase in the life-cycle of the virus, and that they are derived from, and give rise to, a more minute phase capable of passing the Berkefeld N filter. This claim for a complex life-cycle for the filterable viruses has been made before, but has never yet been substantiated. The bodies described are highly reminiscent of the globoid bodies of Flexner and Lewis, and the possibility of their being produced from the culture medium under the influence of the virus, assuming this to be present, must be disposed of before they can be accepted as the aetiological agent of poliomyelitis.

MEDICAL RESEARCH COUNCIL

The Medical Research Council has appointed Professor Edward Mellanby, M.D., F.R.C.P., F.R.S., to be its Secretary, in succession to the late Sir Walter Morley Fletcher. Professor Mellanby, who has held the chair of pharmacology in the University of Sheffield since 1920, is at present a member of the Council. He will not assume full duty as Secretary until next January. The Secretary of the Medical Research Council is *ex officio* Secretary of the Committee of Privy Council for Medical Research.

IN HONOUR OF DR. STILL

We are pleased to publish this week, at page 210, an influentially signed letter announcing a proposal to recognize the life-work of "a great physician and lover of children," Dr. G. F. Still, who recently presided over the International Paediatric Congress in London and is about to retire from hospital work. Not least among the many who desire to take part in honouring Dr. Still will be the Editorial Committee of the *Archives of Disease in Childhood*, who meet at B.M.A. House under his chairmanship.

HEALTH OF LONDON SCHOOL CHILDREN

THE STANDARD MAINTAINED

The report of the School Medical Officer of the London County Council,[1] Sir Frederick Menzies, must necessarily command attention since there is no other statutory authority in the world that can compare with London in the vastness of the work to be done within its gates and the greatness of the opportunity. This year the report has been reduced in size for the sake of economy, but there is no diminution in the interest of the matter contained therein.

NUTRITION

Many important criteria of the health and well-being of London school children display the best figures attained since the inauguration of school medical inspection some twenty-five years ago. For example, the percentages of children with serious dental decay, adenoids and enlarged tonsils, running ears, hardness of hearing, and lack of personal cleanliness are all the lowest ever recorded. Having regard to the difficult economic conditions under which so many families are living, special attention has been paid to problems of nutrition. It is remarkable that the nutrition of the children has been so well maintained, the number recorded as subnormal having increased since 1931 by only 1 per 1,000, and, except for 1930 and 1931, being the smallest yet found. When the 1932 figures for nutrition for all the children subjected to routine inspection at the statutory age groups are analysed, it is found that the nutritional condition of the 8-year-old and 12-year-old children is better than it was in 1931, and the small increase in subnormal nutrition which is shown when the figures are aggregated is due entirely to entrants. This would appear to be associated with the recent epidemic of measles, a disease which notoriously leaves children in a debilitated condition.

Important tests of the value of school medical work are the condition of the leavers and the percentage of defects, found at any age, which are adequately treated. Speaking generally, the figures relating to these matters are quite satisfactory. The leavers are in better health than their predecessors of a few years ago, and of the children in whom defects were discovered at routine inspections 81.6 per cent. were undergoing treatment or were discharged before the end of the year as no longer requiring treatment.

INFECTIOUS DISEASES

There is little of special moment recorded in connexion with the incidence of infectious diseases in schools. Diphtheria has been less prevalent in the last two than in other recent years, but scarlet fever increased from the low level which occurred in 1931. The usual biennial epidemic of measles occurred in the winter of 1931-2, and small-pox is still troublesome, though the tendency is definitely towards decline and the disease is still of a very mild type. One disturbing feature is the continued increase in the number of cases of scabies. No fewer than 1,912 cases were seen by the school doctors in 1932, whereas in 1931 the number was 1,098. This continued increase, which was nearly doubled during the year, has been apparent for some years: it is thought possible that the close examination of skin lesions associated with the prevalence of small-pox has brought these cases to light.

There has been a considerable extension during the year of the scheme for the immunization against diphtheria of the children in the residential schools. The control of infectious diseases in these schools and in children's homes of varying size, each with a susceptible population of all ages from 3 to 16, presents many problems which can only be solved by experience. The public assistance department has co-operated with the education officer's department in obtaining the necessary parental consents, and to facilitate this side of the work a form was drawn up for signature by parents or guardians together with an explanatory leaflet. Altogether there were nearly 5,000 children to be dealt with in this way. For the most part the Schick test toxin and prophylactic used in connexion with the immunization have been supplied from the Council's laboratories at Belmont. During the year the tests for susceptibility to diphtheria have numbered 2,574. Of these, 1,767 proved negative and 807, or 31 per cent., positive; 622 were immunized. In the twelve schools and homes in which active immunization was introduced during the year twenty-five cases of diphtheria occurred. In two the parents refused consent to immunization, in twenty consents had not been obtained, while in two the immunization had not been completed when the children contracted the disease. During the same period twenty-seven children were found to be harbouring germs associated with diphtheria; these were transferred to special hospitals, but they did not develop diphtheria. Active immunization does not, of course, affect the "carrier" condition.

The scheme for the control of rheumatism makes unabated progress. In this section of the work the most important development was the provision of a considerable number of additional beds in consequence of the enlargement of Queen Mary's Hospital for Children at Carshalton.

MYOPIA

An account is given of the special classes for the myopic child, established in connexion with certain of the central schools. The classes are mixed, with a nominal roll of twenty-two each, allowing an average attendance of twenty. The rooms usually are on an upper floor, and are light, airy, and furnished with special appliances for the short-sighted. The children attend the ordinary central school classes, then they return to their own classroom, where they have supervision by a special teacher for periods of rest from close work, and for "home work" under sight-saving conditions. Certain children are allowed by the school oculist to read books with clear print for short and stated periods, and the use of a "Bulletin" typewriter by touch methods. Where the myopia is high and progressive, or where fundus changes are marked, the children are kept strictly to myopic regulations, and are read to by others. In teaching various devices such as French gramophone records are used, and full advantage is taken of the metal and woodwork, laundry, and cookery centres attached to the school. At these centres modification to suit the myopes is made in work such as drawing and measuring, the children's interests are diverted from book work, and much valuable training is given. Four children were successful at the London Chamber of Commerce examination, gaining distinctions. By arrangement with the examining bodies, all public examinations of myopes both at the secondary and the central schools are taken under sight-saving conditions. Three of these particular children have left school, one to be a commercial traveller, another to study pharmacy, and a third to be a buyer with a soft goods firm. Others have engaged in equally suitable work, but one became a clerk, though his work now appears to be changed. Records of fifteen myopes who have been in these classes for two years or more show that the mean average increase of the myopia has been 0.214 dioptre per eye per year. In another group of fifteen over a like period the mean average increase was 0.195 per eye per year.

Investigations into the state of the children's play sand pits in the parks and nursery schools showed that disinfection was desirable. One pound of bleaching powder is added to twenty tons of sand. Once a month the pits are moistened with water and a solution of bleaching powder; they are then well watered and covered for at least three hours. The sand in the infants' sand trays is similarly treated. Much information is given on the various facts of school medical inspection and treatment. There are ninety treatment centres. Eight centres are for the remedial treatment of stammering children, who attend twice a week for fifty minutes' treatment each time.

Reference is made in the report to the medical staff engaged in the school work, and there is an appreciative note of the work of Mr. Macleod Yearsley, who for

[1] *Annual Report of the London County Council*, 1932. Vol. iii (Part II), *Public Health* (Report for the Year 1932 of the School Medical Officer). London: P. S. King and Son, Ltd. (Pp. 73. 1s. 6d.)

twenty-five years was the consulting aural surgeon, and under whose supervision the hard-at-hearing classes, which have proved such a boon, were established.

In conclusion Sir Frederick Menzies writes:

"It is greatly to be desired that it will not be found necessary to curtail in any way essential features of this fundamental work, whose aim is to secure such a foundation of health for the industrial population on leaving school as will stand the nation in good stead in the long struggle ahead in the economic sphere."

Scotland

Edinburgh University Graduation

At the summer graduation of Edinburgh University, held on July 19th, when Principal Sir Thomas Holland presided, the degrees of M.B., Ch.B. were conferred on some 130 graduands, and the M.D. degree upon twenty-one candidates. It was announced that the Cameron Prize in practical therapeutics had been awarded to Professor George F. Dick of the University of Chicago and Gladys Henry Dick, in recognition of their discoveries concerning the aetiology, prophylaxis, and treatment of scarlet fever. After the graduation ceremony the promotor, Professor P. S. Lelean, addressed the graduates upon the importance of physical training. Speaking of the development of athletics at Edinburgh, he said that the University Court first subsidized undergraduate athletics in 1896, when it contributed one-fifth of the £10,000 raised by public subscription to buy the University its first sports ground at Craiglockhart. They looked forward to the day when the various hostels would each have their teams in every branch of sport. Every student might now have an initial medical examination without fee, and, with returning prosperity, they hoped for a contributory insurance scheme which would entitle all undergraduates to any necessary medical and hospital services. Referring to the education of the child, Professor Lelean said that nervous irritability in children was due to overwork at school. He would suggest a six-hour day with no evening work for school children; they should be treated in regard to work in the same way as miners or mature industrialists.

Health of Falkirk

The annual report for 1932 of Dr. J. T. Prangnell, medical officer of health for Falkirk, makes special reference to the effect of unemployment and reduced income upon the health of the citizens. The family income in many cases did not reach 5s. per head per week, which was inadequate to feed, clothe, and house the people. The municipality increased the grants of milk to necessitous mothers and children through the maternity and child welfare clinic, but this could not go far in removing the bad effects of prolonged poverty. The infantile mortality rate rose by over 50 per cent. as compared with 1931. The child welfare centre at Falkirk had become largely a dispensary for milk and malt food, virol, and cod-liver oil emulsion. The report advises more liberal use of milk, fruit, vegetables, oatmeal, cheese, eggs, butter, peas, beans, lentils, and brown bread, with diminution of meat, and issues a warning against the too frequent use of expensive preserved foods, cakes, and pastry.

Glasgow Dental Hospital

At the annual meeting of the Glasgow Dental Hospital Lord Provost A. B. Swan, who presided, emphasized the need of the hospital for £25,000 to complete the payment for the new building. He suggested that some special effort should be made to clear off this amount in one year; he believed that such an effort was possible even in these times of depression. Dr. J. Forbes Webster, dean of the hospital, said that the number of patients was steadily increasing, and also the number of students. There was, however, ample accommodation for more, and it was hoped that with the new hospital and its modern equipment Glasgow would become an important dental centre. The report showed that during the past year 57,492 dental operations had been performed, and that there had been 65,202 attendances by patients.

England and Wales

Middlesex Hospital: Gift for X-Ray Department

Following an inspection of the progress of building operations at the Middlesex Hospital on July 19th, Prince Arthur of Connaught, chairman of the hospital, delivered an address to all workmen employed on the reconstruction scheme. In the course of his remarks, which emphasized the need for further financial support, His Royal Highness announced that Mr. W. H. Collins, chairman of the Cerebos Salt Company, had made the hospital a gift of £25,000 for the opening up of the ground floor of the new east wing and for the establishment and equipment there of a new *x*-ray diagnosis department. The tentative plans, which will await final decision until the new physician-in-charge is appointed to the staff, aim at two "gastro-intestinal rooms," a room for heavy *x*-ray work, another for fracture cases, and others for examination of the chest and nasal accessory sinuses, for urological investigation and operations, and for dental work. Accommodation is also planned for a library, medical officers' room, waiting space, sisters' room, bureau, etc. In view of the growing importance of, and essential difference between, *x*-ray therapy and *x*-ray diagnosis, it is felt that the undertaking which Mr. Collins's gift has made possible will enable the study of diagnosis to develop in future along its own lines, and will place on a new footing of efficiency both the taking of photographs and their interpretation. Prince Arthur of Connaught, in the course of his address, extended hearty thanks to the workmen for all they had done, and warned them that unless in the next few weeks the great efforts which were being made by the friends of the hospital were successful, this might be "good-bye." He hoped that Mr. Collins's gift, which was so timely, would be an inspiration to others to help with the work. Finally, he thanked the men for the care they had taken to carry out the work with as little disturbance and discomfort as possible for patients and medical staff.

Pathological and Cancer Research in Leeds

The annual report of the department of pathology and bacteriology of the University of Leeds has been issued by Professors M. J. Stewart and J. W. McLeod, together with an abstract report on experimental pathology and cancer research by Professor R. D. Passey. The routine work of the department has continued to increase on the whole, although there was a sharp drop in the number of specimens examined in connexion with the Venereal Diseases Regulations. The investigation of industrial pulmonary diseases is being extended, the lungs from some fifty cases having been examined histologically and chemically. There was discovered in each of four haematite miners an extreme degree of pulmonary fibrosis, partly diffuse and in part nodular; this was associated

with the presence of large quantities of haematite dust, and a total silica content in the most grossly diseased parts higher than that found in many cases of ordinary silicosis. Another important fact established was the occurrence in two Yorkshire coal miners and in two other miners from other parts of the country of a diffuse fibrotic lesion of the lungs, in conjunction with a total silica content in the diseased parts of no less than 4.16 of the dry weight. As an adjunct to this work a histological study is being made of apical scarring of the lungs, with a view to determining to what extent obsolescent or healed tuberculous scars may simulate silicotic lesions. A method recently introduced in America by van Slyke and his colleagues for the determination of the "rate of urea clearance" (as a procedure for the clinical estimation of the efficiency of renal function) is being studied, with students as subjects. The results obtained so far have confirmed the original statements, and the original and modified methods are being compared with each other and with the hitherto routine renal efficiency test. As regards experimental liver disease, it has been demonstrated that an accumulation of an excess of iron in the tissues does not lead to haemachromatosis. Work has continued on the relative importance of different cultural types of the diphtheria bacillus, an extensive correlation of information regarding a possible relation between clinical severity and bacteriological type being in progress, thanks to the co-operation of workers in Hull and in Glasgow. Although there appears to be wide variation in the different bacterial types in these three centres, the correlation between the clinical and bacteriological findings is very close in all.

Child Guidance Clinics

A report has been made to the London County Council by its Education Committee on the child guidance clinic at Canonbury Place, together with some estimate of the work done in a similar respect by the Jewish Health Organization (East London Clinic) and by the clinic at the Maudsley Hospital. At Canonbury Place 476 children were accepted during 1932, and of those referred for full service, as distinct from special or for merely diagnostic service, more than half were adjusted, and almost a quarter partly adjusted. The phrase "partly adjusted" means that, though seemingly normal, some latent instability persisted, and might cause recurrence of difficulties at a later date. At the East London Clinic the number of children referred during 1932 was 177, most of them for nervousness, backwardness, misbehaviour at home or at school, enuresis, and faults of temper. Of these, fifty-five were satisfactorily adjusted, and nine partly adjusted. At the Maudsley Hospital Clinic the number of new cases dealt with during 1932 was 382, of which 294 were of children of school age, and in addition 268 cases which had previously attended were seen, making a total of 650 cases treated during the year. Of the 242 cases discharged, 114 were improved, and fifty-six partly adjusted. It is considered by the Education Committee that these clinics are doing useful work, and that they should continue to be recognized as school clinics under the section of the Education Act, 1921, which places the duty upon local authorities of providing medical inspection and treatment for children in elementary schools. The committee has had under consideration the question of similar recognition of child guidance clinics conducted at the West End Hospital for Nervous Diseases and at the Institute of Medical Psychology, and these bodies have been informed that the county council will be willing to consider favourably the question of official recognition at the end of one year if they submit details of the work undertaken and the results obtained.

CORRESPONDENCE

Portrait of Dr. G. F. Still

SIR,—In 1899 Dr. Still was appointed to the honorary staff of King's College Hospital. Up to that time no physician for diseases of children exclusively had ever been appointed at any of the teaching hospitals in London or, indeed, elsewhere. A children's ward had been in existence, but it had been under the care of the gynaecologist or the most junior member of the staff, who was required to hold it until he was promoted to the care of adults.

Although there were children's hospitals in London, including Great Ormond Street, where Dr. Still has been physician, King's College Hospital was the first with a medical school to establish a special department for diseases of children. The example has been followed by many hospitals with medical schools. The recent White House Report on children in hospitals shows the extent to which the importance of the subject is now appreciated in the United States. To those who have not been able to come into contact with the inspiring enthusiasm of Dr. Still's personal devotion to the welfare of children his published works are available.

The impending retirement of Dr. Still from hospital work has seemed to some of his friends to be a suitable opportunity for some recognition of his pioneer work. We believe that there are many who would desire to do honour to him as a great physician and lover of children. We invite subscriptions for a presentation portrait of him. Mr. Gerald Kelly, R.A., has generously consented to give the picture provided that a sum of not less than £500 is subscribed for the endowment, with Dr. Still's approval, of a "Dr. Still" cot at King's College Hospital. Subscriptions may be addressed to the Treasurer of the Dr. Still Portrait Fund, King's College Hospital, S.E.5. A list of donors (but not amounts) will be presented to Dr. Still with the portrait.—We are, etc.,

BEATTY,
Chairman of King's College Hospital.
BLANESBURGH,
Chairman of the Delegacy of King's College.
CHARLTON BRISCOE,
Senior Physician to King's College Hospital.
J. F. CAMERON,
Master of Gonville and Caius College, Cambridge.
J. A. DRAKE,
Dean of the Medical School of King's College Hospital.
CHARLES A. FIFE,
President of the American Paediatric Society.
A. DINGWALL FORDYCE,
President of the British Paediatric Association.
WILLIAM FRY,
Chairman of Dr. Barnardo's Homes.
W. GILLIATT,
Chairman of the Medical Board of King's College Hospital.
W. R. HALLIDAY,
Principal of King's College.
ESTHER HAMBLEDEN.
THOMAS HOLLAND,
Vice-Chancellor and Principal of Edinburgh University.
SPENCER LEESON,
Head Master of Merchant Taylors' School.
V. WARREN LOW,
President of the Royal Society of Medicine.
MACMILLAN,
Chairman of Great Ormond St. Children's Hospital.
FREDERICK F. TISDALL,
President of the Canadian Society for the Study of Diseases of Children.
FRANK WHITBREAD,
Treasurer of Guy's Hospital.

London, July 18th.

Assessment of Nutritional State of Individuals

SIR,—Considerable public anxiety exists as to whether the present economic depression has or has not exerted a deleterious effect upon the nutritional condition of the families of unemployed and low-paid workers. Attention has been particularly directed to the nutritional state of children, as it has (erroneously) been assumed that serious lowering of the standard of living of a family will first show itself in a deterioration of the physical condition of its younger members. Practical experience among families whose purchasing power has been reduced by unemployment shows that the self-sacrificing attitude of the majority of parents is of such a high order that it is they themselves, and in particular the mother, who suffer first from under-nourishment, and it is only when conditions become exceedingly straitened that the foodstuffs of the younger children are curtailed.

The Minister of Health, summarizing reports from school and child welfare medical officers, has been able to state that malnutrition and its ill effects have not manifested themselves throughout the country to the extent that had been feared. Further, the report of the Save the Children Fund, recently published, does not disclose that serious malnutrition is prevalent, though the opinion is expressed that there is reason to fear the approach of serious risk of the ill-effects of malnutrition. A large number of school and child welfare medical officers report no increase of malnutrition among children they have examined. Some of these officers compare favourably the present nutritional condition of children with that of pre-war children. These statements express no opinion as to whether the nutritional state of the pre-war children was satisfactory or otherwise.

It is a pertinent criticism of the lack of interest which has, until recently, characterized our attitude towards nutrition that there exists to-day no generally accepted, standardized, or satisfactory method of assessing the nutritional state of individuals. Numerous formulae, combining in various ways the age, height, and weight of children, have been used for the purpose of determining the nutritional condition ; but no single one has been generally accepted as satisfactory, and, further, there exists considerable doubt as to the possibility of assessing with any degree of accuracy the true nutritional condition of any given individual by such means. "Normal" height and "normal" weight can exist contemporaneously with such deficiencies in the nutritional state as, for instance, active rickets. It is open to question whether, in the absence of an accepted standard for the anthropometrical or clinical determination of nutritional states, comparison of the findings of any one observer with those of another is justified.

There exists in a large proportion of children unmistakable clinical evidence of past malnutrition. The presence of dental decay and minor bony rachitic phenomena is direct evidence that at some time the nutrition of the child has been unsatisfactory. Though the prime deficiency in the case of rickets is that of vitamin D, such deficiency, in actual practice, never occurs as an isolated phenomenon. A diet deficient in vitamin D is, in addition, usually deficient in other constituents—proteins, fats, minerals, and other vitamins. The establishment of a standard method of assessing the state of nutrition of children and adults is a matter of urgency. Though the difficulties of laying down a standard are great, an attempt should be made to do so. Without such a standard it is impossible to obtain a true picture of the state of nutrition of the population or of any section of it.—I am, etc.,

G. C. M. M'GONIGLE, M.D.,
D.Hy., B.S., D.P.H.

Stockton-on-Tees, July 21st.

Paying Patients in Voluntary Hospitals

SIR,—Dr. Fothergill's letter in your issue of July 22nd does not justify his summary of the report of the King's Fund Pay Beds Committee. It shows that he had used the words "moderate means," in place of the words "small means" used in the paragraph which he now quotes in his support. He said, and repeats, that the report recommended that "accommodation in voluntary hospitals should be placed at the disposal of those of 'moderate means' on the same conditions as the 'sick poor,' no payment for medical treatment being allowed." The difference is one of substance. For the paragraph which he quotes was the conclusion of an argument that the principle of providing accommodation at a cost to voluntary funds should *not* apply to those of "moderate means" generally, though it could legitimately be applied, on a limited scale, to the marginal section with "small means." The report certainly recommended payment for medical services only if cost of maintenance was paid. But for those of "moderate means" it also recommended that no accommodation at all should be provided at a cost to voluntary funds. And it recommended also that as many as possible should be enabled by insurance to pay both full cost and medical fees.

On the other point of substantial difference, Dr. Fothergill said that the report recommended that hospital committees should lay down "certain rules or limitations" as to the medical practitioners who should be allowed to attend the patients. We showed that the recommendation of the report was that, on this subject, each hospital committee should decide for itself whether or not it should lay down any limitations at all.

Our sole object in writing was, and is, to correct the erroneous impressions thus given of the King's Fund report ; and we cannot agree that, when a writer introduces the report in the forefront of his argument, the substantial accuracy or inaccuracy of his summaries and quotations is not part of the real question.—We are, etc.

LUKE,
LEONARD COHEN,
Honorary Secretaries.

King Edward's Hospital Fund,
July 25th.

Prophylaxis of Malaria

SIR,—As Dr. T. C. Lonie, in your issue of July 15th (p. 126), gives his personal experience of prophylactic quinine in Malaya for three years, and urges its trial there, although Dr. Hoops, after many years of service up and down the Peninsula, denies it to be of any value, perhaps it would assist in passing judgement on the practice of omission in Malacca and other parts of the Colony if the result of abstention from quinine were stated.

After a heavy infection of benign tertian fever soon after arriving in Malaya, for which a three months' course only was strictly carried out, no relapse or re-infection occurred during a period of eleven years spent in the country, working daily in malarious areas and on native and European-owned estates, where a spleen rate of the population averaged over 25 per cent. Quinine, taken with the idea of prevention, tended only to obscure the fact of a new infection and the blood-film diagnosis, and therefore to delay the necessary rigid course of 30 grains daily. It should be stressed that after convalescence the treatment should be maintained under all conditions, and, where the occupation is sedentary, exercise should be taken while quinine is in the blood, so that the splenic circulation is brought into action, as pointed out by Dr. A. Neave Kingsbury. Failure in this respect has diminished its curative value.—I am, etc.,

P. WITHERS GREEN.

London, S.W.3, July 18th.

Intestino-vesical Fistula

SIR,—Mr. Willan (*Journal*, July 22nd) draws attention to the rarity of the above condition, and gives details of six most interesting cases.

Reference may perhaps be made to a joint discussion on "Urinary Complications of Diseases of the Large Intestine," held at the Royal Society of Medicine on May 11th, 1932. In an opening paper on "The Urinary Complications of Diverticulitis" it was reported that, during the years 1922 to 1931 inclusive, ten cases of vesico-colic fistula were admitted to the London Hospital; seven were due to diverticulitis and one to carcinoma of the pelvic colon. In the other two cases *x*-ray examination was negative and the cause was not determined, but it seems probable that they also were due to an inflammatory cause. The seven examples of vesico-colic fistula which were proved to be due to diverticulitis of the colon occurred in 172 patients admitted for this condition to the medical and surgical wards of the hospital during the period in question.

These cases confirm the general impression that fistulae between the colon and the bladder are as a rule secondary to diverticulitis, and only very occasionally to extension of carcinoma. The rarity of the condition is illustrated by the fact that during these ten years 96,192 patients were admitted to the surgical wards of the hospital, so that these ten cases of vesico-colic fistula from all causes represent a proportion of roughly 1 in 10,000 surgical cases.—I am, etc.,

London, W.1, July 23rd. HUGH LETT.

Otorrhoea

SIR,—In his interesting article on otorrhoea (*Journal*, July 8th, p. 47) Mr. E. Watson-Williams mentions the treatment of chronic suppurative otitis media by zinc ionization. He states that (1) its success depends on the preliminary cleansing of the meatus—that the passing of the current through the zinc solution has no effect on the result; and (2) the aura of mystery that surrounds all electrical treatment probably accounts for its vogue.

May I say that I entirely disagree with him? In an experience of many hundreds of cases extending over the past fifteen years I have used zinc ionization in the treatment of chronic otorrhoea with most gratifying, often dramatic, results. That the results are not due solely to the toilet of the meatus and middle ear I am convinced. Mr. J. McLaggan disposed of this suggestion long ago. He treated two hundred cases of chronic otorrhoea—one hundred by the preliminary cleaning of the middle ear and filling with zinc solution but without passing the current, the other hundred by a similar toilet plus passing the current. The results were enormously in favour of the electrical method. His results were published in the *Lancet* of May 11th, 1929. Mr. Watson-Williams seems to think the results are obtained by the "suggestion" that electrical methods often carry. This can hardly obtain where a discharging ear is in question. We have an objective criterion of success or failure—the cessation or otherwise of suppuration.

It is a very curious thing that there should be such opposite opinions about the value of ionization. Many of my otological friends, of whose intelligence and skill I have the highest opinion, have told me that they have tried the method and have failed to get good results. The explanation is (1) that ionization cannot sterilize a suppurating middle ear unless the suppurating area is accessible. The perforation through the tympanic membrane must be of sufficient size to allow of the middle ear being washed out through an intratympanic catheter and filled with the zinc solution. (2) Ionization cannot cure cases of attic suppuration with cholesteatoma.[1] A good many cases of chronic otorrhoea are of this type. It is obvious that in these cases it is impossible to get the zinc solution in contact with the whole of the suppurating area. The cases suitable for zinc ionization are therefore limited. Its use in unsuitable cases is simply waste of time, and its use as a routine method of treating all chronic otorrhoea is bound to be disappointing. Its results in suitable cases are excellent, but the diagnosis of suitability must be made by a skilled otologist, and the otologist must not hand over the case to a nurse or electrotherapeutist to carry out the treatment. It requires all the skill of the otologist to wash out a middle ear efficiently. Anyone who will take the trouble, select his cases, and carry out the technique adequately will get good results.

That zinc ions can coagulate albumin and therefore sterilize has been demonstrated *in vitro* in many striking experiments by Mr. Friel. There can be no question of the sterilizing power of zinc ionization. Its application to tympanic sepsis is another matter. The keynote of its success here is "accessibility."—I am, etc.,

Guildford, July 19th. T. B. JOBSON.

SIR,—From the point of view of a fever hospital physician, Mr. E. Watson-Williams's most helpful paper in the *Journal* of July 8th (p. 47) is marred by his gibe at zinc ionization—namely, "this [that is, electric current] may be omitted without influencing the result." If this is so it seems difficult to explain the numerous cases which have ceased to discharge after a single ionization treatment. This claim is made by A. R. Friel for cases of chronic suppuration due to sepsis alone in an accessible position. I can fully endorse it from my own experience in numerous cases arising during the course of specific fevers treated in hospital.

In most fever hospitals it is impossible to have all cases of otorrhoea treated by an otologist. I have found, however, during the last eight or nine years, that excellent results can be obtained by training the nurses in the technique of zinc ionization as described by A. R. Friel. Under these conditions an average of three or four ionization treatments may be necessary, and in some cases, especially in small children after measles, eight or even more treatments may be required before the discharge finally ceases. But the important fact emerged after eight years' experience of this method in two different fever hospitals in the provinces that not a single case of otitis media arising *de novo* in hospital was discharged with chronic otorrhoea. In every case the ear was dry for at least seven days before discharge from hospital. The otologist at the local school clinics in both instances found that cases of otorrhoea from the fever hospital were reduced to vanishing point.—I am, etc.,

H. S. BANKS,
Medical Superintendent.

Park Hospital, Hither Green,
July 17th.

Treatment of Rodent Ulcers

SIR,—Dr. N. S. Finzi, in his interesting paper on the treatment of rodent ulcers in the *Journal* of July 22nd (p. 137), was at such pains to criticize the treatment of this condition by unscreened radium that some sort of protest, however mild, seems called for. To say that the most important thing about radium treatment is "*not to use unfiltered . . . radiation*" (the italics are Dr. Finzi's) is to ignore both the long experience of the method in the hands of some workers and the results obtained. Dr. Finzi complains of the unnecessary trouble

[1] *Journ. of Laryngol. and Otol.*, June, 1926.

to which he has been put in treating the failures of unscreened radium, but we venture to suggest that he is not alone in being from time to time confronted with the failures of others.

That gamma radiation is the method of choice in the treatment of all but the superficial types of rodent ulcer will not, we think, be denied by anyone, and the views of one of us (R. W.) in this connexion were expressed three years ago in a paper (*British Medical Journal*, 1930, ii, 511), in which statistics of 1,700 consecutive cases were given. In this group, however, we think that the short unscreened single application has advantages over the four applications of Dr. Finzi's method, and that, at the same time, the results do not fall so far short of those shown by Dr. Finzi, and that this is an important consideration.—We are, etc.,

ROY WARD.
A. J. DURDEN SMITH.

Radium Institute, W.1, July 21st.

SIR,—Dr. Finzi's paper in last week's *Journal*, on the treatment of rodent ulcers, contains much that is excellent, but it scarcely does justice to the method of treatment with unscreened radium plates which is still in routine use in many hospitals, and indeed at the Radium Institute also. At the London Hospital about 100 new cases of rodent ulcer attend the skin department each year, and more than 2,000 of these cases have been treated there by unscreened radium plates since Dr. Sequeira began to use radium in 1902. Observation subsequent to treatment has been the routine, and if remaining cured after two years patients continued to report annually for inspection.

Dr. Sequeira evolved the method of treating rodent ulcers by three two-hourly applications of an unscreened, rubber-protected, full-strength radium plate at intervals of six weeks, and the results of such treatment of early lesions were highly satisfactory. Occasional cases did relapse, but these responded to further treatment on the same lines. Treatment with screened radon seeds was begun in 1929 primarily because there were obvious mechanical difficulties in applying the radium plate to awkward angles of the face, and not because one was dissatisfied with the results of beta-ray therapy with early lesions. However, the results obtained with gamma-ray therapy seemed to be better than those obtained with the unscreened plate, but careful analysis shows this to be more apparent than real.

In a paper with Dr. O'Donovan (awaiting publication), we have compared two groups of cases of previously untreated rodent ulcers treated by the two methods and observed for a minimum period of two years after treatment. Of sixty-six cases treated with unscreened radium plates 82 per cent. were cured by a single course of treatment; eleven out of the twelve relapsing cases responded to further similar treatment, and only one case, involving a canthus, relapsed a second time: the percentage of probable cures is therefore about 98. Fifty cases were treated with screened radon seeds (0.3 mm. platinum), and 90 per cent. were cured by the first treatment. Three of the relapsing five have already responded to further treatment, and it is too early to comment upon the other two; but here the final percentage of probable cures is 96, with previously untreated rodent ulcers. We still regard gamma-ray therapy with radon seeds as having very definite advantages, and probably the resulting scars are less conspicuous, but we have seen many excellent cosmetic results after unscreened plates too. Dr. Finzi points out the importance of adequately screened irradiation when treating later cases, and this is an accepted experience. We have not found that emollient ointments have any appreciable effects upon the skin reaction to irradiation, and ung. ac. bor. is very commonly used.—I am, etc.,

R. T. BRAIN.

London, W.1, July 24th.

Lederer's Anaemia

SIR,—Your leading article (*Journal*, July 22nd, p. 157) on the work of Professor Leonard Parsons and his colleagues on haemolytic anaemia in early life affords me an excuse to comment on their most interesting paper on the acute haemolytic anaemia of Lederer. They refer to an article on the same subject by Dr. R. J. L. O'Donoghue and myself, and reproach us for having deliberately excluded from our consideration cases under the age of 2 years. This was entirely because we felt uncertain of our competence to discuss the anaemias of infancy, of which we have little practical experience, and not because we doubted the occurrence of Lederer's anaemia at this age—which is probably the period of highest incidence. Professor Parsons's paper has shown that we were justified in our expectation that this aspect of the disease would be better discussed by the specialist in the diseases of childhood.

One difference between the symptoms in infancy and in later life is the size of the red cells. We have now had Price-Jones curves on three cases at Guy's Hospital (a description of the last case by Dr. R. V. Paine is shortly to be published in *Guy's Hospital Reports*), and none of them was megalocytic. The megalocytosis which occurs in infantile cases is not an essential feature of the disease, and is perhaps an example of a greater reactivity of the bone marrow in early life. Though infrequent, Lederer's anaemia is not excessively rare in adolescence and adult life, and it should always be considered in the differential diagnosis of cases of pyrexia with acute anaemia. In the absence of a positive blood culture, anaemia of rapid onset is unlikely to be due to septic infection, but I am afraid that patients with Lederer's anaemia sometimes die under the provisional diagnosis of septicaemia or infective endocarditis when they might have been rescued by timely transfusion.—I am, etc.,

L. J. WITTS.

London, W., July 24th.

Persistent Occipito-posterior Cases

SIR,—Dr. Somerville's interesting letter on this subject (*Journal*, May 13th, p. 846) and its treatment opens up the whole question of the mechanics of head presentations.

Three movements of consequence are concerned in expulsion of the head. In order of importance they are—flexion, rotation, and descent. It is a helicoid movement through 45 degrees when the occiput is anterior, and through 135 degrees when it is posterior. When flexion is inadequate the occiput may rotate backwards and take up the "unreduced" position. The screw action cannot now take place, for the head has assumed a stable "dead-point" position. If the disparity between head and pelvis is sufficient and the pains adequate, birth may take place without rotation. This appears to be unusual in civilized women, although in some of the more primitive it does not seem to matter much how the child comes.

When curved forceps are applied in the ordinary way to the head in the occipito-anterior position no principle of expulsion is violated provided traction is axial, for flexion is encouraged, and rotation, such as it is, is not interfered with. But it is utterly different when curved forceps are applied pelvic curve forward to the posterior occiput, for the grip is over the face and frontal bones, tending to extend the head, and rotation is impeded because the curve of the forceps is now moving against that of the canal, traction is not axial, and the blades tend to slip off.

There is nothing more ghastly than to behold an energetic individual with axis-traction forceps endeavouring to extract an occipito-posterior head by a long, strong,

and straight pull. When, however, reversed forceps are applied to the reversed head everything is mechanically correct—the posterior grip of the blades encourages flexion, the forceps rotate *pari passu* with the head into their normal position, and the grip is good and safe.

I have always been under the impression that reversed forceps was the method of choice to the occipito-posterior head. It was recommended by Galabin at least as early as 1900, and I have never seen it fail in twenty-five years' experience. I use Barnes-Simpson forceps, and the pair Peter Horrocks advised me to get in 1903 are the only forceps I have ever possessed. They certainly have not as great a pelvic curve as Dr. Somerville's drawing ascribes to ordinary forceps, but then perhaps they are not ordinary forceps, for when held by an overlapping golf grip with the left forefinger through the loop they seem to be endowed with a sensitiveness and intelligence quite their own. They know they cannot pull very hard, and never forget that they are instruments of flexion and rotation quite as much as of traction.—I am, etc.,

Bulfour, Cape Province, June 1st. H. F. BELL WALKER.

Recurrent Volvulus of the Pelvic Colon

SIR,—We welcome Mr. E. G. Slesinger's comments (July 15th, p. 129) on our article in the *Journal* of July 1st (p. 7). We agree that an elongated pelvic colon giving rise to sufficient stasis to cause disability should be resected, apart from any question of volvulus. It was, however, the primary object of our paper to call attention to the fact that recurrent volvulus of the pelvic colon is a commoner cause of obscure symptoms than has been appreciated. We have been led to this belief by the study of the records of the previous case histories of patients who finally died or were operated on for the major crisis of sigmoid volvulus, published by English, American, and Continental surgeons, and by noting the close similarity shown by such histories to those of our own cases. In connexion with this the following quotation may be of interest (Nothnagel, *Diseases of the Intestines and Peritoneum*. English edition, edited by Sir Humphry Rolleston, 1907, p. 600):

"There are a number of cases on record of rotation of the sigmoid flexure in which the final fatal attack was preceded by a number of alarming seizures pointing to an occlusion, but which did not prove fatal: several of these gave a history of attacks of sudden pain, vomiting, constipation, and complete retention of faeces for a time, this occurring several months before the last attack: as a rule the retention of faeces in these first attacks yielded spontaneously or as soon as the patient remained for a time in one position, occasionally after enemata, gastric lavage, etc. In all these cases we are unquestionably justified in assuming that semi-rotation of the bowel occurred several times, corresponding to each attack of pain and retention of faeces, and that in each instance the bowel rotated back into its normal position, so that its lumen became again patent and the passage of the motions was again rendered possible: ultimately, however, the bowel was unable to rotate back into position and the patient succumbed to the attack. It is, of course, impossible to prove that these events actually occurred in all the cases that are recorded, but it is more than probable that in many cases semi-rotation of the bowel can occur in the way suggested: while, therefore, the explanation offered for the occurrence of these peculiar attacks preceding the fatal issue in cases of axial rotation of the bowel is purely hypothetical, the probability of the hypothesis is very strong."

Many writers, including Mr. Slesinger (*Lancet*, August 7th, 1926), consider that the natural reaction of the body to an overloaded pelvic colon is the production of bands on the outer surface of the mesentery to support the loaded portion of the intestine and to take the strain off the sensitive mesentery. We, however, agree with Mr. Garnett Wright (*British Medical Journal*, April 28th, 1928) that these changes in the meso-sigmoid, at any rate in some cases, result from plastic peritonitis set up by repeated attacks of partial strangulation. These attacks, due in our opinion to the minor crises of volvulus, are responsible for the clinical picture of these cases, and we are convinced that a careful study of patients possessing elongated pelvic colons will lead to a considerable number of them being placed in the category of recurrent volvulus.—We are, etc.,

DAVID LIGAT.
St. Leonards-on-Sea, July 17th. T. D. OVEREND.

Ultra-violet Rays in Diseases of the Mouth

SIR,—Dr. Kerr Russell (*Journal*, July 22nd, p. 172) has criticized my observations on the relative sensitivity of the mucous membrane of the buccal and pharyngeal cavities and the normal white skin. The throat lamp I have described is a water-cooled vacuum type of mercury vapour lamp, emitting rays of wave-length from the shorter infra-red to short ultra-violet rays to 2,300 A.U. I have carried out over 600 actual treatments, and I have found that consistently a full erythema reaction of the mucosa is produced after ten to fifteen seconds' irradiation. The normal white skin only shows a faint erythema after sixty seconds' exposure. The buccal mucosa is therefore four times as sensitive as the normal white skin, using the wave-length and intensity of irradiation emitted by this source of light. The apparatus which Dr. Kerr Russell uses must therefore be of entirely different construction from mine.—I am, etc.,

London, W.1, July 22nd. ALBERT EIDINOW.

Use of Quinine in Normal Labour

SIR,—Dr. Dorling, in your issue of July 8th (p. 79), and Dr. Rees (April 1st, p. 587) will probably have been reassured by Dr. Mitchell's statement (July 15th, p. 126) that quinine has not been proved to be a causative factor of retained placenta. Although statistics leave many of us cold, it is possible that they might derive further assurance from the fact that in 103 cases induced by Watson's method—quinine, pituitrin, and castor oil—we found no record of a case of retained placenta (*Brit. Journ. of Obstet. and Gynaecol.*, 1927).

I take this opportunity of expressing the belief that an appreciable number of cases of retained placenta are due to the interference complex, born of that pernicious phrase "grasp and knead the uterus"—a phrase that should be publicly burnt at the stake at a Druidical ceremony held by the patriarchs of the College of Obstetrics and Gynaecology. With the frequent tendency of the female mind to adhere to rule, if the placenta is not "out" in twenty minutes it becomes to many C.M.B. nurses (trained at various schools) a case of adherent placenta. Whether it is retained, adherent, rains or pours blood, or not, they "grasp and knead the uterus," if they have not been doing so already.

When are we going to admit that the present ridiculously scanty practical training of medical students and midwives is responsible for some of the persistent high level of maternal mortality and morbidity? One still meets qualified men who are called on to apply forceps for the first time in their career, and one still meets cervices in ribbons, and the other sequels. Amongst one of many such, I shall never forget the doctor who brought into hospital an undelivered normally proportioned primipara, whose cervix was ripped to ribbons (forceps applied

twice by the doctor, twice by his anaesthetist) and who produced a 7 lb. L.O.A. live foetus with the aid of 1/4 grain of morphine twelve hours later. On being tactfully informed of the result, with some less tactful comments on undilated cervices, the doctor, with a ponderous air of wisdom, advised me: "I always make sure of a strong and heavy midwife, to put her arms around me, to help with the pulling."

A detailed account of obstetric disasters by one of the doyen obstetricians would be fruitful reading. I trust Drs. Mackenzie and Simpson (*Journal*, July 15th, p. 125) will not take these remarks amiss.—I am, etc.,

R. OWEN-JONES, M.B., F.R.C.S.Ed.

London, S.W.3, July 17th.

"New Treatments for Old"

SIR,—I am very sorry that my letter of June 24th should have given offence to Dr. Julian or anyone else. As it seems to have been misunderstood may I, now that I am recovering from what has proved a long illness, say quite simply what underlay all its froth and bubble, hyperbole and banter.

First, I tried to show that the simple facts of experience do not support the idea that suggestion is an adequate basis for all therapy. The note of sarcasm was intended to imply that in these days to suggest to any doctor that he has not thought of the possibility of "suggestion" is not merely an unconscious reflection on his common sense (which may be justified and anyhow is easily forgiven), but on the capacity of his teachers (on which point students are touchy) and the adequacy of his training. The violent contrast here between forced exaggeration and the scientific atmosphere of the lecture room was deliberately introduced to make sure that my words should not be taken too seriously or too literally. After hinting that many of my patients also believed in the metamorphosis of disease (which, of course, allergy supports within limits), I came to my "burlesque," the point of which was to insist on how easy it is to confound *post hoc* and *propter hoc*. Finally, as after any combat we cease to be opponents and shake hands as friends, I doffed my foolery and assured Dr. Julian that though we might differ on ideas or methods we were absolutely at one in our care for our patients, a bond which binds us to them and also to one another.

Ridicule and laughter do not necessarily mean either disagreement or disrespect. They are, as you rightly point out in your editorial (July 8th, p. 65), a part of "that best of education" and among our "most precious memories." It seems a pity if we cannot sometimes revert to the joyous weapons of our youth without misunderstanding, though in this case I suspect that my one and only dose of hyoscine and morphine received the day before had more to do with my use of them than I could then realize. I recollect that that day the world seemed very rosy, and, in spite of personal discomfort, I felt as light-hearted as I intended my letter to be.

With regard to Dr. Kelvin's remarks (p. 79) I can only say that I think that bronchopneumonia may develop very rapidly. That my little daughter's was well developed was proved by the persistence of the physical signs for several days after the temperature had subsided. This is presumably because drugs like omnadin cannot be expected to hasten the process of repair to the same degree that they often seem to quash the symptoms of serious disease. A similar phenomenon is frequently seen after the crisis of lobar pneumonia, when the physical signs may temporarily persist or even increase.—I am, etc.,

W. N. LEAK.

Winsford, July 15th.

Post-vaccinal Encephalitis

SIR,—The clinical memorandum by Dr. F. A. Roper in your issue of July 15th (p. 103) on encephalitis following vaccination prompts me to add some details and remarks to a memorandum of a similar case published by Dr. J. F. Rey (with whose concurrence this letter is written) in the *Journal* of January 14th (p. 60).

Dr. Rey's case was first transfused with citrated blood from a donor who had not been vaccinated for twenty years, a more recently vaccinated individual not being immediately available and the patient being then completely comatose, with Cheyne-Stokes breathing. To citrate blood is said to destroy or diminish antivirus bodies present, and one had hoped here to give whole blood, but the donor was too nervous to be brought into immediate contact with the patient, and the citrated blood appeared to be remarkably efficacious. The amount given was 300 c.cm.—not 30 c.cm., as reported in the memorandum—and the improvement a few hours later was so great (she could then be roused to answer questions and to take liquid nourishment) that one is tempted to believe that a transfusion of 500 c.cm. might have led to complete recovery. The patient had been seen by Dr. H. M. Ayres, medical officer of health, Bognor Regis, who had had previous experience of a number of cases of this disease, and after the transfusion she was visited by Dr. W. V. Shaw of the Ministry of Health. On their advice 30 c.cm. of serum from a donor vaccinated three and a half years before was given intravenously, and recovery was practically uneventful. It was, however, more than eight hours from the time of their decision before such a donor could be found (although an organization for the supply of blood donors exists in the neighbourhood), the serum separated off, and the transfusion performed.

It seems reasonable to hope, then, where the more potent serum of a person vaccinated within recent years cannot immediately be procured, a whole or citrated blood transfusion may act nearly as well, provided that the donor has been vaccinated at some period of his life. To find a recently vaccinated donor in these days may not always be easy, and the business of separating serum from his blood under strictly aseptic conditions requires a laboratory near at hand. An advantage of using serum is that the blood group of the donor is immaterial, but volunteers of blood can usually be found in an emergency, and the preliminary matching and the transfusion are not difficult matters.

Cerebro-spinal fluid was withdrawn on three occasions from Dr. Rey's case, the details of the first of which fluids were given in his article. Since such details are not plentiful in the literature, the findings in all three specimens

Time ...	12 hrs. before blood transfusion	At blood transfusion	24 hours later, at serum transfusion
Pressure...	+	+ slight	+ slight
Amount ...	32 c.cm.	23 c.cm.	22 c.cm.
Appearance	Clear	Opalescent*	Clear
Cells... ...	233 per c.mm.	570 per c.mm.*	112 per c.mm.
Globulin...	Increased	Increased	Increased
Protein ...	45 mg. per 100 c.cm.	50 mg. per 100 c.cm.	40 mg. per 100 c.cm.
Sugar ...	57 " "	28 " "	55 " "
Culture ...	Sterile	Sterile	Sterile

* Anti-meningococcal serum had been given.

cells were made up almost exactly of one-third small lymphocytes, one-third polymorphonuclear leucocytes, and one-third large mononuclears resembling endothelial cells.—I am, etc.,

C. J. HARWOOD LITTLE,
Pathologist, Royal West Sussex Hospital.

Chichester, July 17th.

Arthritis and Allied Conditions

SIR,—Some little time ago I saw a somewhat brief correspondence in the *Journal* regarding the incidence of rheumatism and allied diseases in the Tropics. To my mind then the letters pointed to the fact that sunshine and warmth were more or less preventive agents of these diseases, and that therefore we should look in that direction for the cure of those cases of arthritis and kindred affections which are so much before us in the medical press at the moment.

In all the academic articles, annotations, and discussions bearing upon arthritis and its allied conditions in the *British Medical Journal* of June 17th, not one deals with the Tropics as a possible source of cure, so I now venture to say that, in my mind, there are out here in the West Indies great possibilities of alleviation and resolution of the very worst cases of rheumatoid arthritis and fibrositis. Although some of the statisticians at the Eastbourne conference on rheumatic diseases on June 1st ventured to say that cold and damp had nothing to do with the incidence of rheumatism, or even rheumatoid arthritis, I, as a former periodic sufferer while in England from muscular and articular rheumatism would like to state that *damp*-cold was always the exciting cause of the mischief, but never *dry*-cold, unless the muscles or joints came within the orbit of a current of air to make a draught, then the stiffness and pains would follow just like those felt with the damp-cold disabilities.

My experience as a ship surgeon for over five years, on voyages to both the East and West Indies, tells me that rheumatism is hardly ever seen on the homeward journeys of our ships, but we frequently meet rheumatic people seeking the sun on the outward trips, and many a time they have told me how much benefited they were and how nimble they became after the round trip of five weeks, or their stay for a longer period at one of our sunny islands in the West.—I am, etc.,

A. ROSE, M.B., C.M.
Surgeon of the *Camito*.

At Jamaica, July 4th.

Obituary

J. W. SPRINGTHORPE, M.D., M.R.C.P.,
Physician, Alfred Hospital, Melbourne

We regret to announce the death at Melbourne, on April 22nd, of Dr. John William Springthorpe, aged 78. Dr. Springthorpe left his birthplace at Wolverhampton, Staffordshire, with his parents in early childhood to go to Australia. After being educated at Sydney and Wesley College, Melbourne, he entered Melbourne University in 1874, took the Arts and medical courses concurrently, and graduated M.A. in 1878, M.B. a year later, and M.D. in 1884. He had the distinction, after his return to England to do post-graduate work, of being, in 1881, the first Australian to obtain the M.R.C.P. After serving as out-patient physician to the Melbourne Hospital, and pathologist to the Alfred Hospital, he was in 1887 appointed physician to in-patients at the former and lecturer in therapeutics, dietetics, and hygiene at Melbourne University—posts which he held until 1916.

Our correspondent in Melbourne writes:

Dr. Springthorpe took a keen interest in the affairs of his own profession, being secretary to the Sanitary Section of the Inter-Colonial Medical Congress in Melbourne in 1889, and vice-president of a similar congress in Sydney in 1890. He was president of the Victorian Branch of the British Medical Association in 1891. No one in Victoria played a greater part in establishing dentistry on the high professional plane that it now occupies. Up till about forty years ago the qualification for registration as a dentist in Victoria depended largely on ability to extract teeth! About 1890, chiefly due to the efforts of Springthorpe, a movement was commenced which resulted in the foundation of the Australian College of Dentistry in Melbourne, and he was appointed president of the Dental Board, and became dean of the faculty of dentistry at the University, which post he occupied until he enlisted for active service in 1914.

As an officer in the Australian Army Medical Corps Springthorpe began service as senior physician in No. 2 Australian General Hospital in Egypt in 1915, with the rank of lieutenant-colonel. Returning to Australia in 1916, he submitted a report criticizing the medical and Red Cross arrangements in Egypt. He returned later to France and England, and devoted most of his time to the treatment of soldiers suffering from war neurosis. It is recorded of him that in his schoolboy days he was full of a restless energy, was generous, impulsive, fearless, and had a lively sense of fun: he was also a brilliant scholar, with a catholic taste which went far beyond the confines of his own profession. At the University he took exhibitions in most subjects in Arts and medicine. From his early days he was notable for his originality of thought, his keen criticism of all things doubtful, and his steadfast adherence to every cause to which he lent his enthusiasm. With a mental equipment very much above the average and a tenacity of purpose amounting almost to dogged determination he was a formidable opponent in any controversy, and he almost invariably carried his schemes to fulfilment, even in the face of serious opposition. Usually dogmatic, but always sincere, he seldom failed to achieve the results that he aimed at. As a thinker his reputation extended beyond his own city. In his *Outline of Abnormal Psychology* William McDougall refers to Springthorpe as one of the world authorities on this subject, and mentions him among a group of the most eminent British physicians whose writings on psychology are well known. This is no small distinction. In private practice he had always shown a leaning towards the neurological and psychological side of medicine, and he became recognized as an authority in these branches. For many years he was one of the official visitors to the Victorian hospitals for the insane. After the war he devoted much of his time to various movements for the betterment of social conditions, and he was, during his lifetime, president of the Society for the Health of Women and Children—a society which adopted the Plunket system of infant welfare training and infant feeding. Under his auspices this movement flourished, and it established an efficient training school and many infant welfare centres in Victoria. It eventually gave to Victoria a system of infant welfare education probably unique in the world, and led to the notable reduction of infant mortality in recent years. Dr. Springthorpe's personality has contributed to no small extent. The success of this movement is typical of that of many other State activities to which he lent his aid.

The death of Dr. ERNEST DANIEL ROWLAND, I.S.O., has removed a pioneer of modern medicine in British Guiana. Born at Southsea in 1858, Rowland received his medical education in the University of Edinburgh, where he graduated M.B., C.M. in 1881. Two years later he entered the British Guiana Medical Service, and spent thirty years in the two large hospitals in the Colony—six as junior in Georgetown, seventeen as resident surgeon in New Amsterdam, and seven as resident surgeon in Georgetown. He retired from the service in 1913 with a great reputation as a surgeon and a hospital administrator, and was then appointed consulting physician to the Public Hospital, Georgetown. In the following year the King conferred on him the medal of the

Imperial Service Order. While a junior officer in Georgetown he first collected and published reports of interesting cases and operations from the records of the local hospital. His publication was entitled the *Georgetown Hospital Reports*, the precursor of the *British Guiana Medical Annual*, the twenty-fifth issue of which was mentioned in these columns on July 8th (p. 61). Rowland founded the *Annual*, and edited the first six issues; papers by him appeared in nearly all the issues from 1887 to 1921. His great services to medical progress in British Guiana were the subject of a tribute in the twenty-fifth issue, dated 1932. He had acted as Surgeon-General in the Colony on two occasions. Soon after the constitution in 1883 of the local branch of the British Medical Association he was elected honorary secretary and treasurer, and held office until 1894. He accomplished a great deal of good work for the Association in a quiet and unassuming manner. His only son was killed in the war.

Universities and Colleges

UNIVERSITY OF LONDON

A meeting of the Senate was held on July 19th, when the Vice-Chancellor, Professor L. N. G. Filon, D.Sc., M.A., F.R.S., was in the chair.

Dr. R. A. Webb, A.B.Tennessee, M.D.Johns Hopkins, Ph.D.Camb., University Lecturer in Pathology at Cambridge since 1929, has been appointed to the University Chair of Pathology at London School of Medicine for Women.

Mr. W. E. Herbert, M.R.C.S., L.R.C.P., L.D.S., Director of the Department of Conservative Dental Surgery at Guy's Hospital Medical School since 1931, has been appointed to the University Readership in Conservative Dental Surgery at Guy's Hospital Medical School.

The following candidates have been approved at the examination indicated:

M.S.—(*Branch I, Surgery*): J. T. Fathi (University Medal), B. M. Fonseka, A. G. Harsant, S. J. Scurlock.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The course of study for the Diploma in Public Health (University of London), which extends over a period of whole-time study of nine calendar months, will commence on October 2nd. In connexion therewith the Fishmongers' Company Studentship, entitling the holder to free tuition for the whole course, is open for competition amongst European students who possess a medical qualification which is registrable with the General Medical Council. The subject of examination (both written and oral) will be hygiene within the scope of the syllabus for the Third Examination for Medical Degrees (or the M.B., B.S. Examination) of the University of London. The examination will be held at the School on September 20th and 21st. Applications must be received by September 16th, and should be addressed to the Secretary, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C.1.

Corrigendum.—In the list, published last week, of the candidates approved at the examination for the Diploma in Public Health, we should have stated that Dr. J. M. Henderson was awarded a mark of distinction.

UNIVERSITY OF BIRMINGHAM

Dr. H. P. Gilding has been appointed to the chair of physiology in succession to Professor I. de Burgh Daly.

UNIVERSITY OF WALES

The following candidates have been approved at the examinations indicated:

M.D.—R. Ström-Olsen, J. M. Thomas.

M.CH.—T. G. I. James.

M.B., B.CH.—D. Evans, J. R. E. James, D. J. Jones, G. P. Jones, R. G. Phillips, G. P. Roberts, J. D. Spillane, H. A. Thomas, A. M. Williams.

UNIVERSITY OF EDINBURGH

A graduation ceremony was held in the M'Ewan Hall on July 19th. The following medical degrees and diplomas were conferred:

M.D.—‡J. M. Anderson, J. le F. C. Burrow, †C. A. Calder, ‖I. A. G. L. Dick, *A. R. Gilchrist, G. Gordon-Napier, May Gower, ‡Captain D. P. Lambert, I.M.S., Lieutenant D. K. Ll. Lindsay, I.M.S., ‡J. P. M'Gibbon, ‡Lieutenant R. L. H. Minchin, R.A.M.C., Ruth M. Monro, W. More, R. P. A. Rigg, C. K. Robertson, R. A. T. Rouse, H. Shaffer, Dorothy M. Taylor, J. S. Westwater, J. Yunibandhu.

D.PH.—Y. Sidki.

M.B., B.CH.—‖Mary E. Alexander, E. S. Amzalak, J. E. Armah, G. L. Ashford, A. H. Banks, C. C. Barclay, P. C. Barkla, ‖D. M. F. Batty, M. S. Behardien, ‖A. Brown, W. L. Brown, M. A. Byer, W. Calder, K. Cameron, J. R. Campbell, Hilda I. Carter, D. R. Cattanach, W. G. F. K. Chalmers, B. D. Chowdhury, N. J. Cochran, H. D. Conway, J. W. Crawford, J. H. Croom, P. H. Dalgleish, G. J. G. Davidson, D. N. Dobbie, T. E. Elliot, R. A. Elliott, G. D. Falconer, J. R. Forsyth, J. P. Gardiner, M. M. Ghosh, E. H. Gillespie, J. W. D. Goodall, C. L. Grant, F. S. Gregory, H. W. Hall, C. D. Hanham, G. V. Harry, F. D. Hart, J. L. Henderson, R. J. Henderson, W. Henderson, F. J. C. Herrald, I. H. Hewetson, D. Hittleman, H. Hogan, D. R. Huggins, Margaret W. Jenkins, D. M. Keir, A. D. Latham, Edith Laurie, J. W. Leith, L. Levingson, W. A. Liston, Joycelyn C. Lowe, Freda M. L. Lucas, G. B. Ludlam, G. R. Lunn, R. D. Lyon, D. D. Macdonald, B. F. Macfarlane, A. M'Gregor, W. M. M'Intyre, I. MacKenzie, N. Macmichael, Christina M'D. M'Taggart, ‖D. Malloch, Joyce E. Marshall, S. H. Martin, W. R. Maxwell, Lilian W. May, E. W. Melvin, Mary F. Miller, R. G. Miller, Evelyn E. Mitchell, R. Mitchell, Mary Moffett, W. A. Morton, D. L. Murray, Honora C. Osborn, T. S. Outerbridge, Marjory M. Pearson, R. S. Peill, J. B. Perrin, J. P. Philp, W. A. Ramsay, J. F. Rattray, R. W. Rattray, J. D. Reid, Isabella M'K. Robertson, Lucinda R. Roden, Lily C. Rossouw, G. A. Roulston, C. F. Roza, J. J. F. Russell, Winifred I. Russell, N. F. Sawers, J. Saxton, J. G. Sclater, G. I. Scott, D. F. S. Shaw, J. A. W. Shearer, A. Shelton-Agar, G. G. Sherriff, J. B. Shield, M. C. Stander, R. H. Stevenson, G. E. S. Stewart, A. D. Stoker, A. L. Stuart, Agnes B. Sutherland, Grace Sutor, Hon-fan Tai, H. P. Tait, Mary Tan, Kum-Swan Tay, A. W. S. Thompson, A. Thomson, Emily S. O. Thomson, S. Thomson, D. J. Waterston, Mary Watson, A. V. Wells, G. D. Wight, T. I. Wilson, R. M. Young, R. Zakariyya, M. S. Zan; W. A. Moore (died July 5th, 1933).

DIPLOMA IN PUBLIC HEALTH.—R. O. Cairns, A. J. Campbell, Lillie S. Dickson, H. P. S. Gillette, W. A. Gomes, A. R. Graham, Anna M. Herdman, Isobel O. Kennedy, Captain F. M. Khan, I.M.S., Rosa Morrison, Roberta T. Rankin, G. Singh, Ruby J. B. Slater. Awarded February 1st, 1933: O. E. R. Abhayaratne, Susannah S. Murdoch, E. J. Ratnayake, N. Wijeyesekera. Awarded May 8th, 1933: J. Macqueen.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—Awarded May 8th, 1933: Minnie Gosden, D. P. Lambert, A. R. Sikund.

DIPLOMA IN PSYCHIATRY.—Awarded May 8th, 1933: R. G. M'Innes.

DIPLOMA IN RADIOLOGY.—E. Ll. Godfrey, Georgina M. H. Somerville.

* Awarded gold medal for thesis. † Highly commended for thesis.
‡ Commended for thesis. ‖ Passed with honours.

The following prizes were presented: *Cameron Prize in Practical Therapeutics:* Professor G. F. Dick, M.D., Sc.D., University of Chicago, and Gladys H. Dick, M.D. *Thesis Gold Medallist:* A. R. Gilchrist. *Syme Surgical Fellowship:* D. I. C. Finlayson. *Goodsir Memorial Fellowship:* R. Walmsley. *Freeland Barbour Fellowship:* R. J. Kellar. *Ettles Scholarship and Leslie Gold Medal, Mouat Scholarship in the Practice of Physic, and Murdock Brown Silver Medal in Clinical Medicine:* A. Brown. *Murchison Memorial Scholarship in Clinical Medicine:* D. M. F. Batty and A. Brown (equal). *Buchanan Scholarship in Midwifery and Gynaecology:* B. F. Macfarlane. *James Scott Scholarship in Midwifery and Gynaecology and Beaney Prize in Anatomy and Surgery:* D. M. F. Batty. *Conan Doyle Prize:* Winifred I. Russell. *Annandale Gold Medal in Clinical Surgery:* W. A. Liston. *Royal Victoria Hospital Tuberculosis Trust Gold Medal:* D. Malloch. *Thomson Memorial Medal in Child Life and Health:* A. B. Wallace. *Scottish Association for Medical Education of Women Prize:* Mary E. Alexander. *Dorothy Gilfillan Memorial Prize:* Agnes B. Sutherland. *Wightman Prize in Clinical Medicine:* R. J. Henderson. *Pattison Prize in Clinical Surgery and Sir Robert Jones Prize in Orthopaedic Surgery:* J. G. Sclater. *Wellcome Medals and Prizes in the History of Medicine: Gold Medal,* J. Cowen; *Silver Medal,* Esmé G. L. Mark. *Cunningham Memorial Medal and Prize in Anatomy and Anderson Henry Prize in Botany:* A. G. R. Lowdon. *Whiteside Bruce Bursary:* Nina A. B. Verity.

LONDON INTERCOLLEGIATE SCHOLARSHIPS BOARD

The following awards of medical entrance scholarships and exhibitions have been made on the results of the Board's examination:

UNIVERSITY COLLEGE.—*Medical Scholarship,* B. Brownscombe; *Bucknill Scholarship,* D. F. Eastcott; *First Medical Exhibition,* G. B. Jones; *Second Medical Exhibition,* J. I. P. James.

KING'S COLLEGE.—*Warneford Scholarships,* G. F. W. Tripp, W. M. Stephens, A. F. Russell; *Sambrooke Scholarship,* F. E. Stock.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—*Science Scholarship,* G. Beven.

LONDON SCHOOL OF MEDICINE FOR WOMEN.—*St. Dunstan's Exhibition,* R. C. Cassell; *A. M. Bird Scholarship,* A. E.

Burch. *Mrs. George M. Smith Scholarships*, J. R. Simmons, R. Caggan; *Mabel Sharman Crawford Scholarship*, D. K. Paterson.

LONDON HOSPITAL MEDICAL COLLEGE.—*Price Scholarship*, L. Grandstein; *Science Scholarship*, W. H. G. Baker.

COMBINED SCHOLARSHIPS EXAMINATION

As the result of the combined hospitals scholarship examinations (St. Bartholomew's, St. Thomas's, and Guy's), held this month in London, the following scholarships and exhibitions have been awarded:

St. Bartholomew's Hospital Medical College.—University Scholarship, D. B. Fraser (Christ Church, Oxford); Exhibition, J. W. Parks (Trinity College, Cambridge).

St. Thomas's Hospital Medical School.—University Scholarship, G. C. Smith (Christ's College, Cambridge); Exhibition, G. H. Baines (St. John's College, Cambridge).

Guy's Hospital Medical School.— University Scholarship, R. H. S. Thompson (Trinity College, Oxford); Exhibition, W. H. Valentine (St. John's College, Cambridge).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the College held on July 20th Mr. John Wheeler Dowden, President, was in the chair.

The following twenty-six successful candidates out of seventy-seven entered, having passed the requisite examinations, have been admitted Fellows:

R. D. Aiyer, W. J. Brandon, J. M. Brewster, R. Caldera, W. H. Carlisle, H. Carson, H. T. Cox, A. K. Dev, H. S. Evans, A. H. Harvie, P. C. Hogan, J. S. Jeffrey, R. D. Jones, J. S. Kessell, G. J. Lamprecht, R. G. B. Lusk, R. G. Macbeth, W. S. Mack, J. B. Marinan, A. A. Miller, J. J. O'Donoghue, A. N. Roxburgh, T. G. Scott, S. J. Scurlock, A. D. Smith, N. A. A. van Buuren.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the quarterly meeting of the Royal College of Physicians of Edinburgh, held on July 18th, with the President, Dr. Robert Thin, in the chair, Drs. D. B. McCrie Lothian (Larbert), A. D. Gorman (Blackburn), and W. R. Russell (Edinburgh) were introduced, and took their seats as Fellows of the College.

Drs. J. F. C. Haslam, *M.C.* (Barbados), E. F. Dott (Edinburgh), W. L. Burgess (Dundee), S. A. Smith (Edinburgh), and R. M. Murray-Lyon (Edinburgh) were elected Fellows.

Medico-Legal

"LEGAL AID SOCIETIES"

With the growth of motor traffic and the consequent increase in road accidents, bodies have sprung up known as "legal aid societies." In some cases this title may actually represent a group of persons, but in others it is simply a cloak for a solicitor or firm of solicitors. The practice is to send a tout or agent to the hospital to visit a patient who has been injured in an accident, to represent to him that he will almost certainly obtain damages if he goes to law, and to offer to conduct his case in return for 10 per cent. of the proceeds. Such an arrangement, if no charitable justification can be shown, is an offence against the law of the kind known as champerty (originally *champs parti*), and speculative litigation of all kinds is rightly considered disreputable by the legal profession. Among its particular evils are the probability of a settlement on quite inadequate terms, and the risk that the patient will lose the action and have to pay costs, which the society will not be likely to refund. The patient, moreover, will not receive the best advice, because solicitors of standing do not undertake this kind of work.

In order to combat the scandal the Law Society in 1931 agreed on a scheme with the Royal Victoria Hospital, Folkestone, the town in which it held its annual provincial meeting that year. The management of the hospital advised its patients to have nothing to do with any person approaching them with gratuitous offers of legal asistance, but to consult one or other of the local solicitors, a list of whom they were prepared to supply on request. The annual report of the Law Society, which was adopted by the general meeting this month, shows that unauthorized agents have been fairly completely excluded from that hospital, and that, although such persons used to have several cases at every session of the County Court before the introduction of the scheme, they have had none since. The giving of solicitors' names to patients does not seem to work in practice at Folkestone; the provision was made simply as an alternative to the touts, and the best thing is that the patient should go to his own solicitors in a normal way.

The Middlesex County Council has also asked the Law Society to help it to prevent touting in the five large hospitals under its control. Here, of course, the problem is slightly different, for the hospitals serve large and populous urban districts and the solicitors are, to a large extent, unknown to either the Law Society or the hospitals. The county solicitor is to write to every solicitor in Middlesex inquiring whether he desires his name to be placed on the rota on condition that he shall charge no fee, or a purely nominal one, for the first interview, and give full information to the client on the amount of costs he receives from the party settling the claim. It will not be possible to exclude the name of any solicitor, but a patient who desires to be helped to select one will naturally turn to the hospital authorities, who will be informed by the County Council of any particular considerations which apply to any solicitor. The list will certainly be a long one and will probably be divided into a number of equal parts, which will be used in rotation, but the patient will always be asked first of all whether he has a solicitor of his own, and if he has he will be given every facility for communicating with him. He is also reminded to communicate with his insurance company, if he has one. It is still possible for legal aid societies to secure instructions through the relatives of patients; but the printed notice which is being issued to all accident patients advises them to repudiate at once any agreement on a commission basis entered into by any relative or friend, and any retainer to a solicitor signed in consequence of such an agreement; also to warn their relatives not to sign any similar agreement, however persistent the demand. The difficulty will probably be overcome by experience.

It will be interesting to see whether the rota of solicitors is used more in Middlesex than in Folkestone. No solicitor whose name appears on it expects to make any considerable profit, because not only will the number of cases be small compared with the number of solicitors, but a large proportion will probably be "poor person cases." The solicitors' profession is rightly anxious to do away with the exploitation of patients in hospital and to secure that injured persons receive their just rights. The Law Society is discussing a similar scheme with the London voluntary hospitals and with the Manchester Corporation. Any hospital which admits the victims of running-down cases is therefore able, if it desires, to protect them with little trouble from the attentions of legal aid societies, and it is to be hoped that schemes like those already in operation will become general.

ALLEGED NEGLIGENCE BY "NATURE-CURER"

WALTON *v.* LIEF AND ANOTHER

In the King's Bench Division on July 14th judgement for the plaintiff with costs was entered by the Lord Chief Justice in the action in which Mrs. Eleanor May Walton claimed damages from Mr. Stanley Lief of Park Lane, and Natural Healing, Ltd., of Wigginton, Herts, for personal injuries alleged to have been caused by the negligence of the defendants, and for breach of warranty to cure her of lupus erythematosus. An account of the hearing of the action and of the verdict appeared in the *Journal* of July 15th (p. 132).

After argument by counsel on the question of costs the Lord Chief Justice said: "I will say no more than this. I think that there should be judgement for Mrs. Walton for £123 16s., and costs. I think that the defendants were very fortunate in that the amount of the damages was no more."

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Government has proposed that the Parliamentary Recess shall last from July 28th to November 7th. The Speaker is empowered to summon the House of Commons earlier if emergency should arise, but such a summons is unlikely.

This week the House of Commons discussed the Post Office Vote, the Government's proposed guarantee for the production of motor spirit from British coal, shale, or peat, the World Economic Conference, and Dominion affairs. All outstanding Estimates for Government expenditure were carried. The Road and Rail Traffic Bill was read a third time.

In the House of Lords the Royal Assent has been given to the Cancer Hospital (Free) Act.

On July 26th the Lords amendments to the Manchester Royal Infirmary Bill were considered and agreed to. The Samaritan Free Hospital for Women Bill was read a third time in the Commons and passed without amendment.

The Local Government and other Officers Superannuation (Temporary Provisions) Bill was read a second time in the Lords on July 20th. On July 25th the Bill passed through committee, and was read the third time and passed.

On July 25th the Road Traffic (Compensation for Accidents) Bill passed through committee.

The House of Commons on July 20th agreed, on the motion of Mr. Douglas Hacking, for a "Return of licences granted under the Act 39 and 40 Vict., c. 77, showing the number of experiments performed under the Act during 1932, and the registered places at which such experiments may be performed (in continuation of Parliamentary Paper No. 108 of 1932.)"

University Degrees Bill

The second reading of the University Degrees Bill was moved in the House of Lords by Lord JESSEL. He remarked that the Bill was in substitution for the Spurious Degrees Bill which was introduced in May, and withdrawn because of its bad drafting. At present there was nothing to prevent anyone putting letters after his name, implying that he possessed a university degree. It was wrong that corporations should be allowed to sell these degrees, and have a side-line in "millinery," which deceived many people. The present Bill said that any corporation which granted unauthorized degrees would be subject to a penalty. The penalty was also imposed on any person who used or assumed a degree to which he was not entitled. A schedule set out a list of the corporations allowed to give degrees, and a second schedule stated the various degrees. Provision could be made in committee for the establishment of new degrees by universities. The Bill put no liability on the President of the Board of Education. It would be open to anyone to take action to enforce it. Lord Jessel cited a pamphlet in which a man described himself as "D.C.Sc., Physician B.," and further described himself as "D.S., D.O.(London), F.R.S." This pamphlet induced people to buy an article in the belief that it was vouched for by an eminent medical authority. Lord Jessel suggested that the committee stage of the Bill might be taken after the Recess, as the Vice-Chancellors would meet in the middle of September. If they took further objection he would not proceed with it. Lord IDDESLEIGH said the Bill would inflict hardship on those with genuine foreign degrees who had to add the university after the letters. A man would be entitled to use the letters of a bogus degree obtained abroad provided he put the name of the bogus university after the letters. Many of these bogus universities had convincing names. Lord IRWIN said that if the House gave the Bill a second reading the Home Secretary and Lord President of the Council would desire to have certain amendments considered in the committee stage.

The Bill was read a second time without a division, and sent to committee of the whole House.

Health Insurance and Medical Benefit

Sir E. HILTON YOUNG informed Lieut.-Colonel Sandeman Allen on July 24th that the numbers of persons in the several areas who would cease to be insured under the National Health Insurance Acts at the end of the present year could not be known for some time, but he had no reason to think that the introduction of this factor, if it were practicable, would have any material effect on the allocation of the grant. Replying to Captain Crookshank, Sir Hilton Young added that there was no truth in the rumour that he intended to alter the system of allocation.

On July 24th, replying to Mr. Thorne, Sir HILTON YOUNG said that the number of persons who ceased to be entitled to cash benefits under the national health insurance scheme on December 31st, 1932, was approximately 70,000. These persons were still entitled to medical benefit under the Act.

Road Traffic (Compensation for Accidents) Bill

The report of the Select Committee of the House of Lords on the Road Traffic (Compensation for Accidents) Bill announced that the committee had heard witnesses representing the Ministry of Transport, the Ministry of Health, the Home Office, the British Hospitals Association, King Edward's Hospital Fund, and the British Medical Association, besides representatives of the motoring interests, and had received aid from the Government actuary. The committee was greatly impressed by the gravity of the problem with which the Bill dealt, and found no likelihood of accidents attributed to mechanically propelled vehicles being substantially decreased in future. Insurers' representatives stated that an analysis of 20,222 claims showed that in 4,529 cases no compensation was paid to the person injured. The committee had reason to believe that in many cases inadequate compensation was paid. The Bill, as referred to the committee, proposed that negligence on the part of the motorist be assumed unless the contrary was proved, the defendant being exonerated only where the accident was wholly due to the fault of the pedestrian. Where no negligence was proved on either side the motorist was made liable. The Bill departed from a principle of the Common Law, which had been subject to other invasions. The committee pointed out that in eleven out of thirteen foreign countries negligence was assumed on the part of the motorist unless the contrary was proved. In some of these countries a greater degree of care was imposed by law on pedestrians. The committee came to the conclusion that a further departure from the general principles of the law of negligence was justified in respect of motor cars. Where a pedestrian, without negligence on his part, was injured by a motorist whether negligent or not, he should be entitled to recover damages. Where there had been contributory negligence the pedestrian should be debarred from recovering full damages, but not be deprived altogether of compensation. The committee reported that it had made amendments to the Bill. It proposed that in the case of all children under 14 involved in motor accidents the parents should have the right to recover medical and funeral expenses, bringing the law of England into harmony with that of Scotland.

The report continued:

"Clause 3 is a clause which was submitted to the committee for adoption in the course of evidence given by the Right Hon. J. H. Whitley on behalf of King Edward's Hospital Fund. Mr. Whitley pointed out that Section 36 of the Act of 1930 had worked unfairly in various ways. For example, some insurance companies have contended that an *ex gratia* payment to an insured person is not a payment made 'under a policy' within the meaning of the section and, therefore, carries no hospital payment; the limit of the hospital payment to a maximum of £25 has proved much too low, as in a large number of cases that amount is greatly exceeded; the claim to payment under the section is forfeited if a hospital has made a charge, however small, and some insurance companies have even contended that payments received by a hospital under a workmen's contributory scheme are equivalent to payments made to meet a 'charge,' and further, the section does not authorize any claim to payment for the treatment of out-patients. It is understood that as the result of the working of the present law the voluntary hospitals are subjected to an uncovered expenditure of at least £200,000 per year on the treatment of motor accident cases. The committee are of the opinion that this condition of affairs ought to be dealt with by legislation, and they recommend the clause for adoption by the House."

Clauses 4 and 5 attempted to deal with the speculative solicitor, and with persons who haunted hospitals and pressed

injured pedestrians and others to employ them for the pursuit of their claims on terms of "No cure, no pay."

The committee inserted a provision that the Act should not come into force until six months after it passed.

The House of Lords in committee on July 18th considered the amendments to the Bill. Lord DANESFORT said that as the Bill emerged from the Select Committee Section 36 of the Road Traffic Act, 1930, with respect to payments to hospitals, had been amended. Clause 3 of the Bill now provided that where a payment was made by the authorized user or owner of a vehicle in respect of the death of, or bodily injury to, any person through the use of the vehicle, and the dead or injured person had, to the knowledge of the authorized insurer or owner, received treatment at a hospital, the hospital expenses reasonably incurred in such treatment should be paid by the authorized insurer or owner, after deducting from such expenses any money actually received by the hospital in payment of a specific charge for such treatment. The EARL OF PLYMOUTH said that the Government regarded the report of the Select Committee as a valuable provision towards the solution of the admittedly difficult problem of compensation in the case of motor accidents. The Government had not yet had an opportunity to consider the clauses, but he thought the Select Committee had considerably improved the Bill. There was no hope of any legislation passing this year.

The committee agreed with the amendments of the Select Committee.

Maternal Mortality

Replying, on July 20th, to Mrs. Runge, Sir HILTON YOUNG said that the rate of maternal mortality in 1932, though higher than in 1931, was slightly lower than in the three preceding years. It was not possible to assign specific reasons for these small variations in the yearly rate. Whether increased mortality was due to increased average age at which mothers had children was an aspect of the question constantly under investigation and consideration by statistical analysis of the age distribution of maternal mortality. The allegations that the Government in making "cuts" was making conditions worse for mothers were without foundation. It was the Government's constant policy to press the development of the maternity services. It was not always possible to relate statistics of mortality to any particular area which was not recognized by the Registrar-General as a unit area for the collection of statistics, and deductions based upon mortality in areas which were not sufficiently big to give a true statistical basis were often very misleading. Answering Sir Francis Fremantle on the same day, Sir Hilton Young stated that in England and Wales sixty-one county councils, eighty-three county borough councils, and 289 other borough and district councils provided services under the Maternity and Child Welfare Act, 1918. At the end of 1932 sixteen county councils, forty-three county borough councils, and forty-six other borough and district councils were exercising the power to pay a midwife's fee in cases of necessitous mothers whose confinement took place in their own homes. He did not think a deduction that the majority of local authorities were making inadequate use of these powers would be accurate.

Air Ambulance in Scotland

Mr. SKELTON, on July 25th, told Mr. Kirkwood that the Secretary of State for Scotland had considered the communication sent to him from the Midland and Scottish Air Ferries, Ltd., in regard to the proposal for an air ambulance service between the Western Isles and Glasgow, for the conveyance of urgent cases to the city hospitals. The Department of Health proposed to arrange a meeting with representatives of the Midland and Scottish Air Ferries, Ltd., to discuss the experience which the company had already gained in operating an air ambulance service in the Highlands and Islands. Mr. KIRKWOOD asked if the Secretary for Scotland was not aware that the British Red Cross Society already, in conjunction with the Government, was supplying an aeroplane for the Manchester district, and also was flying from Croydon. He asked why the right hon. gentleman was holding up something similar which was to take place in Scotland, Mr. Skelton said that so far from holding this matter up, they were engaged in inquiring into it. Mr. T. RAMSAY asked that, in matters affecting the maintenance of the surgical services in the Western Islands, due regard should be taken of the medical officers and the boards of management of the various hospitals there, who were acquainted with this problem from a practical standpoint. He asked Mr. Skelton to ascertain the views of various district councils, who knew the geographical and transport problems of the islands. Mr. Skelton said that all the matters concerned would be taken into account.

Increased Death Rate following Rehousing

On July 25th Mr. LOUIS SMITH asked the Minister of Health if his attention had been called to the report of the medical officer of Stockton-on-Tees, that the average death rate of a population transferred from slum areas to new hygienic conditions showed an increase. Mr. SHAKESPEARE replied that the report had been fully considered and the Minister had caused inquiries to be made in other areas. These inquiries tended to show that the conditions reported in Stockton-on-Tees were exceptional. The experience in other towns where inquiries had been made showed that slum clearance and rehousing were normally associated with a substantial improvement in health, particularly in the case of children.

Expenditure of Insurance Committees

Replying on July 24th to Mr. Thorne, Sir HILTON YOUNG said that under Section 2 of the National Health Insurance Act, 1926, a sum not exceeding 13s. per member per annum was payable by approved societies in respect of the provision of medical benefit. Out of this a sum not exceeding 6d. per member per annum was available for the administrative expenses of Insurance Committees. During the last few years the actual amount spent by Insurance Committees on administration had been slightly less than the product of the 6d. available, but in so far as the cost of the service was less than the maximum sum of 13s. per member, any such unexpended amount fell to be taken into account in determining the future charges to be made to approved societies. He had no power to utilize any such balance for the provision of medical benefit for persons who ceased to be insured under the Acts.

The "Noise Nuisance" from the Air.—On July 12th Mr. LOVAT FRASER asked for the appointment of a committee to recommend how the noise of aerial machinery could be made less harassing and injurious. Sir PHILIP SASSOON replied that much had already been done on experimental lines to reduce noise from aircraft. The difficulty was that an effective silencer seriously curtailed performance. He hoped eventually to attain a reduction of noise without a prohibitive sacrifice in other directions. He did not consider the appointment of a new committee would advance matters. A special aircraft noise subcommittee of the Aeronautical Research Committee had been engaged on the problem for some time in collaboration with the National Physical Laboratory. Sir Philip told Mr. Smedley Crooke on July 13th that to insist on an undertaking from all air pilots that they would set a course at least 300 feet high over all houses and that when pupils were under instruction the course should be over open country, would often be impracticable for technical reasons and inadvisable from the point of view of safety in flying.

Food Storage in Enamelled Vessels.—On July 20th, replying to Mr. Joel, Sir HILTON YOUNG said he had not thought it necessary to discourage the use of enamel ware in public institutions. He had issued a general warning that now that the use of antimony in place of tin had become common in the manufacture of enamel glazes, enamelled hollow-ware vessels, obviously intended for other purposes, might be dangerous if used for preparation or storage of food or drink.

Pensionable Services under India's New Constitution.—Sir S. HOARE informed Sir E. Graham-Little that all members of the regular Indian services, both military and civil, whether or not they held H.M. commission, were in the same position as regarded the payment of pensions in respect of their Indian service. The position was that those pensions had been in the past and were now charged to Indian revenues alone; and it was proposed that they should continue to be so charged under the new constitution. He could add nothing in this respect to the statement he made on March 7th, 1932.

Medical News

A meeting and dinner in connexion with the Old Residents' Club, Manchester Royal Infirmary, will be held on October 7th. Members who have not yet received an invitation are asked to communicate with the Secretary, Old Residents' Club, Manchester Royal Infirmary.

A tour of the French Alpine spas will be held from September 5th to 17th, under the direction of Professors M. Villaret, M. Piery, and E. Chabrol. The therapeutic centres to be visited include Vals, Grenoble, Uriage, Aix, and Evian. The inclusive price will be 1,100 francs. The tour will end at Evian, where a congress on renal insufficiency has been arranged for the three following days, September 18th to 20th. Among the topics for discussion are the relation of the composition of the blood plasma to renal oedema, alteration of the blood calcium in renal insufficiency, extrarenal azotaemias, chlorine in nephritis, treatment of anuria of infective and toxic origin, and the action of renal impermeability on the endogenous metabolic processes in nephritic patients. The fee for the congress is 75 francs. Further information may be obtained from the Federation of the Health Resorts of France, Tavistock House (North), Tavistock Square, W.C.1.

The twelfth American Congress for Physical Therapy will be held in Chicago from September 11th to 15th. Further information can be obtained from the Executive Secretary, 30, North Michigan Avenue, Chicago.

The ninth annual congress of the Far Eastern Association of Tropical Medicine, which was to have been held at Nankin, has been postponed.

The twenty-seventh Congress of Polish Surgeons will be held at Posnan from September 12th to 15th, when discussions will take place on hypertrophy of the prostate, introduced by M. B. Szerszinski and M. B. Laskovnicki, and treatment of malignant growths, introduced by Professors A. Jurasz and K. Mayer.

The annual general meeting of the Medical Society of Individual Psychology was held on July 13th, when Dr. J. C. Young was elected chairman, and Professor W. Langdon Brown vice-chairman for the ensuing season, with Dr. F. G. Crookshank as secretary and editor, and Dr. H. C. Squires as treasurer. In his report as secretary Dr. Crookshank said that during the session now drawing to a close the attendance at meetings had steadily increased, the average number of members, associates, and visitors present being 38.2. The list of subscribing members and associates now totalled 114. Dr. Crookshank referred also to the increasing success of the individual psychology pamphlets, which had only been made possible by Mr. Daniel's generosity. The next session will open on October 12th, at 11, Chandos Street; Dr. Adler may visit England before this, and deliver an address towards the end of September. Communications relating to these and other meetings should be made to Dr. Crookshank at 57A, Wimpole Street, W.1.

The next award of the Hunterian Society's gold medal will be made in 1934 for essays received not later than December 31st, 1933. The competition is open to all general practitioners of Great Britain, Ireland, and the Channel Islands. The rules governing the award may be obtained on application to the secretary, Mr. Andrew McAllister, at 79, Wimpole Street, W.1.

Merchandise Marks (Imported Goods) No. 5 Order, 1929, requires that thermometers imported separately or as part of any other article shall bear an indication of origin applied by acid-stamping or etching, sand-blasting, engraving, or burnt-on enamel. A Direction issued by the Board of Trade provides that, in the case of mounted thermometers, the indication of origin may be alternatively stamped, printed, impressed, stencilled, or branded in a contrasting colour on the front of the scale or mount. The Board has now referred to the Standing Committee appointed under the Act the question whether the Order in Council should be amended either in accordance with the terms of the Direction or otherwise in respect of the goods in question. Representatives of any interests substantially affected who desire to make representations to the Committee should communicate with the Secretary, Mr. E. W. Reardon, at the Board of Trade Offices, Great George Street, S.W.1, not later than August 5th.

The considerable contribution made by representatives of veterinary practice to the People's League of Health's recent investigation into the relation of tuberculosis to the milk supply emphasized the close relation existing between the diseases of animals and the public health, and at a recent meeting of the Council of the League it was decided to set up a veterinary council.

According to official statistics the total number of deaths from all causes in Spain during 1932 was 388,895, or 19,716 less than in 1931. The excess of births over deaths was 281,630. The mortality from all causes in Spain during 1932 was 16.44 per 1,000 inhabitants. The infantile mortality was 112 deaths under one year for every 1,000 born alive, as compared with 117 in 1931.

At the meeting of the Central Midwives Board for England and Wales on July 20th approval as lecturer was granted to Dr. Elizabeth Main Moore, St. Giles's Hospital, Camberwell; and Dr. Erichsen Sutton Page, St. Mary Abbots Hospital, Kensington (*pro tem.*).

Among the bequests in the will of the late Mr. H. T. Mills, Squire of Langton, Leicestershire, is included the sum of £100,000 to Leicester Royal Infirmary, "to be held as a permanent endowment of the ward about to be erected at the infirmary at my expense."

The King has approved the reappointment of Dr. K. S. Wise as a nominated member of the Legislative Council of Trinidad and Tobago.

The 375th anniversary of the foundation of the University of Jena was celebrated on July 1st and 2nd.

Dr. Rollier of Leysin has been nominated an honorary member of the Medical Society of Copenhagen.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Mouth Dryness

Dr. W. JOHNSON SMYTH (Bournemouth) writes in reply to the inquiry published on April 8th (p. 639): Mountain ash berries (rowan berries) are perhaps the best of all sialagogues. They are plentiful this year, and ought to be preserved by the usual methods of fruit preserving, or hung up to dry so as to be available for the next twelve months. The berries ought to be plucked before they ripen fully, otherwise they become sweet, and are not then so effective.

Income Tax

Depreciation of Car

"J. R. T." bought a 12-h.p. car in 1927 for £408, and sold it in March, 1933, for £41, buying a 10-h.p. car for £171. He has claimed the loss on sale of the old car £408−£41=£367, but the inspector of taxes will allow only £171−£41=£130—that is, the actual out-of-pocket cost of replacement.

⁂ There are two alternative methods of dealing with such transactions: (*a*) claiming "depreciation" year by year and "obsolescence" when the car is replaced, and (*b*) claiming cost of renewal. "J. R. T." has adopted the second, which is simpler but less satisfactory, because where the price level has fallen the renewal allowance is inadequate to cover the capital loss. If he had claimed depreciation at 20 per cent. on the written-down value from 1928-9 onwards he would have received (£82+£65+£52+£42+£33=) £274 by 1932-3 inclusive, and could then have claimed "obsolescence"—that is (£408−£274−£41=) £93, as an expense of the year ending March, 1933, so that the aggregate allowances would have covered the capital loss. In all the circumstances we advise "J. R. T." to lodge a claim with the inspector of taxes under Section 24 of the Finance Act, 1923—which provides for redress where excessive tax has been paid owing to an "error or mistake" in the taxpayer's return—for a revision of the past five years' assessments to give effect to the depreciation and obsolescence allowances which he has omitted to claim.

New Partnership—Cash Basis

"G. O. C." entered into partnership in a practice in 1930, and took it over entirely as from March 31st, 1932. "The assessment for 1933" is being dealt with on the basis that the gross income is the cash receipts for the year to March 31st, 1933, plus all unpaid bookings as at that date. (We assume that the "cash receipts" so taken exclude those relating to bookings for work done prior to March 31st, 1932.) Is this method usual? It has not been previously applied in "G. O. C.'s" case, and causes extra trouble each year.

⁂ It is clear that tax is payable on trade or professional profits due but unpaid, and the adjustment of the amount of the cash receipts—upwards or downwards—for the increase or decrease in debts due to a practice is undeniably correct. In many cases the amount of the unpaid debts remains fairly steady, and the "cash basis" is accepted by the revenue without adjustment. But where a practice is treated as a new one—or where part of the cash receipts go to a retired partner—the taxpayer's "income" for tax purposes is something more than would be calculated from his cash receipts alone, and "G. O. C." appears to be under the necessity of admitting the adjustment for bookings. He is, however, entitled to deduct from the gross amount of the outstanding bookings any sums which he has reasonable grounds for thinking he will never receive.

LETTERS, NOTES, ETC.

Intussusception in a Family

Mr. J. ARMSTRONG, F.R.C.S.I. (Ballymena), writes: May I add one to the curious surgical records which we see occasionally, and to which Mr. McAdam Eccles made an addition in the *British Medical Journal* of July 15th in his record of the case of repeated nephrolithotomies. There is in our neighbourhood a family in which there are six children, three girls and three boys. Upon each of the three boys I have operated in infancy for intussusception, the last one at the age of 8 months about three months ago. In this last case, five days after the operation, intussusception recurred at a different part of the bowel, and the baby had to be done a second time. All the operations were successful, and the boys are up to the present all healthy children. The cause of the frequency of the intussusception in the family may be pure chance, or it may be congenital neuro-muscular incoordination affecting the males only.

Treatment of Chorea

"G.P." (Surrey) writes: Would it not be wise to try drugs first before proceeding to new and dangerous treatments for chorea? I am acquainted with a bad case that went on for years. The child could never go to school or play with other children, dropped articles, and was always falling down. She was treated by several doctors and sent to a home—all without result. This case was completely cured in a few weeks with large doses of arsenic. The child now is fit for school and can play with her companions. With all these new treatments there is a danger of medicines being forgotten. It is like Charlie Chaplin, who, after working for hours trying to break into a house, found the front door open. Surely the golden rule is, "Try simple measures first."

Herpes and Varicella

Dr. W. L. TEMPLETON (London, N.) writes: It is rather a remarkable coincidence that on the day I read Dr. Silcock's article on "Herpes Zoster Brachialis with Concurrent Varicelliform Eruption" I should see a similar case in a patient of the same age. Miss X, aged 74, developed on July 19th, after three days of neuralgic pain, a typical herpes zoster of the first branch of the right trigeminal nerve; the eruption was profuse on the forehead and the nose, but the cornea did not seem affected. Three days later my attention was drawn to a vesicular eruption on the face, both sides of the neck, chest, and the back as far down as the waist, which on inspection looked like a typical chicken-pox. There was no history of contact with chicken-pox, and the patient remembers from a history of slight scarring on her forehead that she had had a severe attack of chicken-pox in childhood. The order of eruption in both Dr. Silcock's and my own case would lead one to suggest rather that the vesicular rash, whether true varicella or not, is an atypical manifestation of the virus of herpes zoster.

Diagnosis of Scarlet Fever

Dr. F. R. HUMPHREYS (Wokingham) writes: The difficulty attending the arrest of an epidemic of scarlet fever emboldens me to give the following particulars of an epidemic which passed through my hands some years since, and was only arrested after some four months of it. Sixty-nine cases in all were sent to the local isolation hospital out of some three hundred boys. The first two cases were severe and unmistakable. The Dick test was made use of, Dick-positive individuals being subsequently immunized. The latter proved to be carriers during their immune period. Very early the symptoms ceased to be characteristic—some slight increase of pulse rate and possibly some sore throat. The only definite symptom manifested throughout was a slight oedema of the skin, with some doubtful rash in a few cases. The skin felt rough and dry. On picking it up it was thickened, and the normal limit of the epithelium was indefinitely demarcated from the subcutaneous tissue. This skin symptom came to be regarded as pathognomonic among those who had been exposed to infection, and isolation followed. The correctness of the diagnosis was indicated by the fact that, with two exceptions, all subsequently peeled and the epidemic ceased. Examination of throat swabs for haemolytic bacteria proved of the greatest value.

The Bridge of Allan Conference

Sir HENRY S. LUNN, M.D., writes from the Reform Club: I shall be glad if you will allow me to correct a misapprehension which has arisen. On May 20th, 1933, a medical conference was held at Bridge of Allan in which several well-known medical men took part. The conference resulted from an invitation which I issued, the subject of the discussion being "Rational Dietetics." In subsequent publications for which I was responsible the title "Modified Fasting and Dietetics" has been used as having been the subject of discussion at the conference. I regret that this title has been used rather than the title "Rational Dietetics," which was originally agreed upon with the chairman before the conference took place, and which latter was, in fact, the subject of discussion at the conference, and appeared on the invitations sent out to the medical members of the conference. I have taken steps to have the correction made on all future publications issued relating to the conference in question.

Caravan and Camp Sites (1933), published by the Automobile Association, is a comprehensive list of over 1,500 sites. All practical points—charges, postal address, accessibility for caravans, access to sea, etc.—have been indicated. The booklet is a companion to *Caravanning and Camping*, and is issued free to members of the A.A.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 32, 33, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 80.

Remarks

ON

ESSENTIAL VASCULAR HYPERTENSION*

BY

SIR HUMPHRY ROLLESTON, BART.
G.C.V.O., K.C.B., M.D.

As reference here must be confined to persistent high blood pressure without any obvious cause, especially renal disease, the work of Stephen Hales, carried out about 1708 (published in 1733) and others on the estimation of normal blood pressure would be out of place. In China the characters and significance of the pulse were studied in most elaborate detail from the time of Pien Ch'ias 255 B.C. Li Shi-Chen, the famous compiler of the *Pen T'sao Kang Mu* or *Great Herbal* (1590), described one form (Chin) as "tense; hard and full like a cord," and as indicating "wind, cold, and pain due to chills." It was also stated that a pulse "like the snapping of a cord or like the flipping of a finger against a stone" was a sign of kidney disease at a stage when death would follow in four days (Wong). Bright noted the "full and hard" character of the pulse in his account (1836) of the disease which bears his name, and as "the first student of the hypertensive problem" (Janeway, 1913), thus established the association of a raised blood pressure with renal disease. But the logical basis of chronic interstitial nephritis was expanded in 1868 by George Johnson's account of widespread muscular hypertrophy of the arterioles, which, by exerting a "stopcock action," protected the tissues from the access of blood rendered toxic by renal disease.

In 1872 a further step was taken by Gull and Sutton, in their philosophical conception of arterio-capillary fibrosis or a general "hyalin-fibroid" thickening of the arterioles and capillaries, the kidneys being secondarily, or not obviously, affected. This new horizon was extended by F. H. H. A. Mahomed (1849–84) of Guy's Hospital, whose papers between 1874 ("The Aetiology of Bright's Disease and the Pre-Albuminuric Stage") and 1881 ("Chronic Bright's Disease without Albuminuria") made him "one of the chief pioneers of blood pressure observations in disease" (Ryle). Working with a very primitive instrument as compared with present sphygmomanometers—his modification of E. J. Marey's sphygmograph—he showed that high blood pressure preceded the onset of arterio-capillary fibrosis and renal disease, was sometimes present from youth onwards apparently as an antecedent of later Bright's disease, and occurred in lead poisoning and other conditions. These conclusions are astonishingly prophetic of modern views.

Clifford Allbutt began his advocacy of the recognition of persistent high arterial blood pressure not secondary to chronic kidney disease in an address on February 27th, 1895, to the Hunterian Society of London, on "Senile Plethora, or High Arterial Pressure in Elderly Persons." In this address he suggested as an alternative the word "hyperpiesis," and pointed out that persistent high arterial blood pressure was not confined to the elderly. He frequently elaborated this thesis, and eventually restricted the use of the word "hyperpiesis" to the high sphygmomanometric reading, and employed the modified title "hyperpiesia" for the clinical condition. In 1915 he retrospectively diagnosed as a case of hyperpiesia Richard Cœur-de-Lion, who when not occupied in fighting was, he feared, "a glutton and a drunkard, and a bad subject for the septic wound of which he died."

* Opening paper in a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Dublin, 1933.

NOMENCLATURE

The term "essential hypertension" is now widely used to describe persistent high blood pressure not obviously secondary to renal or other disease, the accurate recognition of which has been facilitated and become general as a result of the routine use of the sphygmomanometer and of the elaboration of tests for renal efficiency which help to eliminate the nephritic cases. W. H. Broadbent in 1890 applied the term "virtual tension" to the impression conveyed to the finger by arteries worn out and dilated by old-standing high blood pressure when the heart is failing. Huchard in 1893 wrote on "hypertension," and introduced the word "presclerosis"; Volhard and Fahr in 1914 spoke of "benign hypertension," and in the following year Theodore Janeway preferred the title "primary hypertensive cardiovascular disease." Clifford Allbutt earnestly deprecated the use of the word "tension" as descriptive of the blood pressure.

In a critical review of Huchard's *Traité clinique des Maladies du Cœur et des Vaisseaux* (1893) he remarked: "Hypertension and hypotension are too often used by clinical writers, but rarely or never by scientific physiologists." In 1903 he stated that high tension was applicable to a dead tube only, not to a living artery, and in his last publication (1925) that "hypertension (or, to speak more grammatically, hyper*tonus* or *super*tension) denotes too narrow a meaning: 'tension' can be predicated only of the proximal distended vessels, and in them is not the essential factor; the essential factor is the rise of blood pressure."

On the other hand, O'Hare, in advocating the heading "vascular hypertension," points out that it is surely better to use a simple term than one the meaning of which is not at once obvious; and Thomas Lewis, in his recent and concise account, adopts the title "essential hypertension." The adjective "essential" has been criticized, and though probably better than "idiopathic" is not so good as "primary."

NATURE OF ESSENTIAL HYPERTENSION

Essential hypertension may be briefly described as a persistently raised systolic and diastolic blood pressure not due to arterio-capillary, renal, cerebral, or other recognizable morbid change. It therefore resembles chronic splenic anaemia, in that many cases of undetermined aetiology are grouped under one descriptive term. It may, however, cause, and be the antecedent stage of, cardiovascular changes, renal fibrosis, and their various results. There is good evidence that a raised blood pressure and renal disease can each cause the other, and that, in an early stage, the renal lesion wrought by hypertension is an arteriolar thickening and narrowing in an otherwise normal organ (the arteriolosclerotic kidney, Gray).

It has often been urged that high blood pressure is a compensatory adaptation to maintain an efficient circulation through the kidneys, brain, and myocardium. Reid's observations on patients did not support this view as regards renal function. Experimentally increase of the intracranial pressure above that in the cerebral arteries produces anaemia of the brain, and thus calls forth, through the vasomotor centre, a general rise of the systemic arterial blood pressure (Cushing, 1901; Starling and Anrep). Starling suggested arteriolar proliferation in the vasomotor centre as the cause of hypertension. Bordley and Baker found a definite association between hypertension and arteriolosclerosis in the medulla oblongata; out of twenty-four cases of generalized arteriosclerosis, fourteen with constantly raised blood pressure showed arteriolar changes in the medulla, whereas in the remaining ten cases without hypertension the medulla was free from arteriolar sclerosis. Neither Cutler nor Tuthill could confirm this correlation. According to Evans,

hypertension and the diffuse hyperplastic sclerosis of the arterioles are concomitant effects of the same cause. MacWilliam, after a full physiological discussion, concluded that the hypertensive impulse, however caused, emanates from the controlling vasomotor centre in the medulla. It has been suggested that the condition may depend on hypersensitiveness of the vasomotor centre, but as the result of experiments Kroetz contested this. Vasomotor instability is present in many cases of hypertension, but whether as the primary cause, as a concomitant reaction, or as a result is open to debate. It is conceivable that a metabolic poison selectively constricts the arterioles of the vasomotor centre, and that the resulting ischaemia stimulates pressor impulses.

That the peripheral obstruction responsible for high blood pressure is due to spasm and not to structural narrowing was rendered highly probable more than forty years ago by W. H. Broadbent's observation that vasodilators such as amyl nitrite produce a fall of pressure. Clinical observation proves that arteriosclerosis and high blood pressure, though often associated, occur independently of each other ; there is indeed much more evidence that long-continued hypertension is responsible for degenerative arterial changes than that ordinary arteriosclerosis raises the blood pressure. The site of the peripheral obstruction in essential hypertension, whether in the arterioles, as is suggested by their visible constriction in the retina, in the capillaries, or in both, is an open question, and it is quite conceivable that it varies.

The constant normal fluctuations in the capillary bed, however, render it doubtful if the capillary pressure estimated in the skin represents that in the extensive splanchnic and other deep areas of the body. Kylin (1921) stated that the capillary pressure is raised in glomerulo-nephritis, in which there is widespread capillary change, but is normal in essential hypertension ; Boas and Mufson, however, found the capillary pressure high in seventeen and normal or low in twenty-eight out of forty-five cases of essential hypertension.

A division has been made into benign and malignant hypertension (Volhard and Fahr ; Fahr). But the malignant form is apparently a complication with diffuse change in the arterioles, which in some rare recorded cases has resembled that in periarteritis nodosa (Gray). It mainly occurs in the comparatively young, in the fourth decade, and runs a rapid course with very high blood pressure, acute functional failure of the brain, myocardium, and kidneys (Keith, Wagener, and Kernohan), death being often due to uraemia. Fahr described the renal changes as malignant nephrosclerosis, and Boyd as resembling those in the " flea-bitten " kidney due to the embolic focal glomerulo-nephritis in subacute bacterial endocarditis with necrotic changes due to ischaemia. It is therefore clear that " malignant hypertension " differs from uncomplicated essential hypertension.

Aetiology

If it be accepted that essential hypertension precedes, and may eventually be responsible for, arteriolosclerosis and chronic renal sclerosis and not vice versa, what are its causes? A persistently raised blood pressure is a reaction, and it is no longer necessary, in obedience to the law that there is " but one cause for one effect," to explain all cases of essential hypertension by a single and therefore specific factor such as renal inadequacy, endocrine disorders, mental worry, or errors of metabolism. While it is safest to take an agnostic attitude about the cause, many hypotheses have been put forward.

Heredity.—Heredity has been rightly considered to be a disposing factor. It is shown to be so by family records, from a study of which Weitz concluded that " genuine or vascular " hypertension is a constitutional disease with dominant Mendelian characters. George Draper has tabulated the anthropometric characters of those prone to become the subjects of hypertension, and Major recently illustrated the influence of heredity by the freedom from high blood pressure of the pure-bred Chinese, with their Oriental calm, in the past. In the symposium on *Arteriosclerosis* (1933), edited by Cowdry, both Lange and G. D. Williams throw doubt on the influence of heredity in the majority of cases.

Endocrine Disorders

In addition to the nervous mechanism of the sympathetic and parasympathetic, chemical factors play an important part in the control of the circulation, the two mechanisms being closely related. The chemical messengers or hormones exerting a pressor effect are adrenaline and vasopressin (posterior lobe of the pituitary).

An excessive secretion of adrenaline (hyper-epinephrism) was suggested as a cause of hypertension in 1904 by Vaquez, Josué, and others ; but, as evidence of adrenal overactivity, stress was laid on hyperplasia of the cortex, which may well have been a secondary lipoid storage, and as numerous observers failed to find a greater pressor effect from the blood of hypertensive than from the blood of normal subjects, the view failed to carry conviction. It has been revived, however, by Vaquez, with very definite reference to overactivity of the chromaffin system, by Paul, and by Goldzieher who has described hyperplasia of the adrenal medulla. So far, however, the presence of adrenaline in the blood of subjects with essential hypertension has not been established.

Primary adrenal tumours have, in rather exceptional instances, been associated with hypertension, and a brief reference to this subject has some bearing on the hypothesis that hyper-adrenalaemia is responsible for essential hypertension. Of the various forms of primary adrenal tumours some, especially the undifferentiated tumours (neuroblastomas) of the medulla, are not associated with a raised pressure, whereas the subjects of well-differentiated chromaffin tumours may experience paroxysmal crises of high blood pressure, a condition distinct from essential hypertension. Some cortical tumours, contrary to what would logically be anticipated, have been associated with persistently raised blood pressure.

Primary tumours of mature chromaffin cells (phaeochromocytomas when arising from the adrenal medulla, paragangliomas when derived from chromaffin cells elsewhere) are rare ; in 1929 Rabin collected thirty cases, in ten of which the blood pressure was raised. In 1922 Marcel Labbé recorded a case with paroxysmal hypertension, and in 1930 collected eight of a similar character. Adrenaline has been found in these tumours (Pincoffs). These crises, between which the blood pressure may be normal, follow slight exertion, or occur without obvious cause ; the blood pressure may rise to 300 mm. Hg, and pulmonary oedema may occur. They may perhaps be regarded as the pathological equivalent of the events described in Cannon's " emergency hypothesis " (1911)—namely, discharge into the circulation of adrenaline in excessive amounts in response to emotions such as fear. This form of paroxysmal arterial hypertension varies much in degree and duration, the latter from seconds to days (Castex). The attacks have been regarded as much the same as those of Nothnagel's angina pectoris vasomotoria and those due to intravenous injection of adrenaline. Freedom from further crises has followed removal of the tumour (Pincoffs).

Primary tumours of the cortex have been associated with a continuously raised blood pressure in rather exceptional cases, which have been recorded and collected by Volhard, Langeron, and Lohéac. The cortical tumours may be bilateral (Langeron; Schröder). It is not known if these cortical tumours are constantly derived from any one of the usually described three zones of the cortex. Cushing (1932), however, brought forward evidence that some at least of the reported cases of cortico-adrenal hypertension are examples of basophil adenoma of the anterior lobe of the pituitary.

Deficiency of hypotensive bodies in the circulation is, as pointed out by MacWilliam, a possible cause of hypertension. The extracts of many organs and tissues—some, such as histamine, choline, acetylcholine, and adenosine, known, others, from the liver and brain (Major), unidentified—exert a depressor influence on blood pressure. But apart from these reference may be made to the hormone vagotonine, recently isolated from the pancreas by Santenoise; it is separable from insulin, increases the reflex excitability of the vagus and parasympathetic, and exerts a depressor influence different from that of choline, histamine, adenosine, peptone, and from the other hypotensive bodies extracted from the pancreas by Livon, P. Gley and Kisthinios, and Frey and Kraut ("kallikrein"). Whereas the latter extracts produce an immediate fall of blood pressure which may be followed by a rise, the hypotensive effect of intravenous or hypodermic injection of vagotonine is delayed, slowly progressive, prolonged, and never followed by a hypertensive reaction. An intravenous injection of vagotonine before one of adrenaline inhibits the secretion and impairs the activity rather than directly neutralizes the action of adrenaline.

That vagotonine may play a part in controlling the rise of blood pressure and its absence in some cases account for hypertension is perhaps supported by the observation that in uncomplicated hypertension the tonus of the sympathetic nervous system was increased and that of the parasympathetic diminished, as compared with normal subjects (Patek and Weiss); and also by the frequency of a low sugar-tolerance in hypertensive subjects, for Santenoise found that vagotonine has a hypoglycaemic effect less rapid in onset, but more prolonged, than that of insulin. Abrami, Santenoise, and Bernal have treated eighty patients with high blood pressure of various kinds by vagotonine, usually by hypodermic injection: thirty of these were permanently better after a series of injections, the best results being obtained in those with paroxysmal crises of hypertension; a number of patients did not respond to vagotonine. These results, taken in conjunction with the paroxysmal crises of high blood pressure in patients with chromaffin-celled tumours of the adrenals, lend support to the view that essential hypertension is not due to excess of adrenaline in the blood. An unidentified depressor substance present in the urine of normal persons has been found to be absent from the urine of hypertensive patients by Wollheim and Lange.

The hypertension about the time of the menopause, often in fat women and coincident with arthritis, has been ascribed to, as it is contemporaneous with, endocrine changes. The evidence is at the best circumstantial. Ayman and Pratt consider that the hypertension is psychical in origin; this explanation is on the same lines as Kylin's view (1925), that hypertension is a manifestation of a general nervous disorder, especially of the autonomic system. But this only shifts back the question of causation.

Pressor Substances.—Many investigations have been undertaken to isolate pressor substances, other than adrenaline, in the blood, and due to disturbed metabolism or to imperfect excretion, especially of protein derivatives. Persistent, and at the same time cautious, claims have been made since 1924 by Major on behalf of guanidine bases; in approximately 50 per cent. of a large number of hypertensive subjects he has obtained evidence of an increase in the blood of a substance with reactions resembling those of guanidine; this has been confirmed by Pfiffner and Myers. Major has also observed a fall of blood pressure in hypertensive patients when induced diuresis caused an increased output of this substance in the urine. Waldbott's conclusion that some cases of unexplained hypertension may be caused by allergy was tested and contested by Cohen, Fineberg, and Rudolph. "A distinct therapeutic success" in reducing hypertension was reported by Allen and Sherrill by restriction of the sodium chloride intake; but this was contested by Mosenthal and by Berger and Fineberg.

Psychical Influences.—In 1876, at the Sheffield Meeting of the British Medical Association, Clifford Allbutt read a paper on "Mental Anxiety as a Cause of Granular Kidney." As acute emotion causes a temporary rise of blood pressure it has been assumed that long-continued worry, or the strain of strenuous existence, may be responsible for essential hypertension; but it must be remembered that mental strain is often accompanied by circumstances harmful to health, such as overeating and want of fresh air and of exercise. Some doubt has been thrown on this influence of mental strain by Soma Weiss's analysis of 33,000 life assurance applicants with a systolic pressure of 170 and a diastolic of 100 mm. Hg; this showed that the average blood pressure of small farmers was as high as, or slightly higher than, that of lawyers, medical men, teachers, and members of other professions specially exposed to mental strain. Long-continued mental strain and worry are very common, and no doubt many with this history become hypertensive; but many escape, and by no means all hypertensive patients have led a strenuous life. That mental worry may have some influence, especially in those with a hereditary tendency and when combined with other unfavourable circumstances, cannot be denied; but as a single efficient cause its claim must not be rated too high.

CLINICAL SIGNIFICANCE

Lastly, a few words on the clinical significance. Although symptoms may occur in patients with essential hypertension, what evidence is there that they are due solely to the persistently raised blood pressure rather than to its cause or to the effects of its long-continued action on the cardiovascular system or kidneys? It is common knowledge that hypertension may exist in persons who do not complain of any symptoms, at any rate until they learn, perhaps after an examination for life assurance, that their blood pressure is too high. The subjects of uncomplicated hypertension are prone to vasomotor instability, and hence fluctuations in the blood pressure occur more readily than in normal persons. These subjects may be free from symptoms while the raised blood pressure remains fixed at the level best suited to the individual, and so long as secondary changes, such as cardiac and renal failure, are absent. But a sudden considerable rise may precipitate discomfort just as in paroxysmal hypertension. It has been thought that the early symptoms of essential hypertension are due to functional disturbances of the blood supply of the brain, either by spasm or by causing increased intracranial pressure of the cerebro-spinal fluid.

Polycythaemia.—The red count may be increased in hypertension; in some degree it was present in 45 per cent. of Kerppola's cases, and Lenaz found a definite relation between the systolic blood pressure and the red count, systolic pressures of 125, 150, and 170 being associated with 5, 6, and 6.8 million red cells per c.mm. Attempts to explain this occasional association are not very convincing. In polycythaemia rubra or erythraemia the viscosity of the blood is increased (F. P. Weber), and in Gaisböck's group of polycythaemia hypotonica the blood pressure is raised, but these cases are usually complicated by chronic nephritis. Among 189 collected cases of polycythaemia Lucas found records of the blood pressure in sixty-six, and in twenty-one, or one-third, of these the systolic blood pressure was below 140; this suggests that neither polycythaemia nor the constant viscosity of the blood is responsible for the raised blood pressure. It has, however, been argued that polycythaemia is not due to arterial hypertension alone, but to raised pressure in the capillaries, which leads to concentration and a fall in the water content of the

blood (Lomaz). The divergence of opinion, however, about the capillary pressure in hypertension renders further investigation and information necessary before this correlation can be considered. Izquierdo and Cannon's discussion of "emotional" polycythaemia in relation to the sympathetic and the medulli-adrenal action of the spleen, and Lamson's earlier view that excess of adrenaline in the blood may drive the red cells out of the spleen into the circulation, might suggest that those cases of essential hypertension with polycythaemia have an excess of adrenaline in the blood. The simplest explanation of the association of polycythaemia and essential hypertension is the onset of congestive heart failure.

In conclusion, the clinical significance of essential hypertension is obviously that it is the potential antecedent of cardiovascular and renal complications.

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FIELDS OF VISION IN CONNEXION WITH INTRACRANIAL LESIONS *

BY

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It is of scientific interest only to determine the site of a lesion when the latter cannot be treated, but to localize it becomes of urgent practical importance when a chance of radical cure exists. It was not so important to make a diagnosis of appendicitis a hundred years ago as it is to-day. To invite a surgeon to join in introducing this subject is, I think, an indication of the impression that something definite may be done for many intracranial lesions, and that a visual defect must be looked for as carefully as one looks for rigidity and tenderness in the right iliac fossa.

Within recent years much experimental work has been done on the anatomy of the visual paths, and it is not out of place to summarize the results as briefly as possible. Impulses from the left visual field cross to the right halves of the retinae. The fibres from the right sides of both retinae come together at the optic chiasma, and pass in the right optic tract to the external geniculate body. It is accepted that this is the only subcortical centre for vision, and that no visual fibres pass, as formerly described, to the pulvinar of the optic thalamus or the superior quadrigeminal body. From the external geniculate body the secondary neurones of the visual path pass in the optic radiation to the striate area of the occipital lobe. The optic radiation or geniculo-calcarine pathway is identical with the external sagittal stratum of the occipital lobe.

Such is the usual arrangement of the visual pathway, and the general conclusion is that the left side of the field of vision has its centre in the right cerebral hemisphere, just as the left hand has its centre in the right side of the brain, the visual impulses crossing in the air, those from the hand crossing in the spinal cord. Gross lesions of the right visual pathway behind the chiasma will give rise to left homonymous hemianopia; a lesion of the chiasma will give rise to bitemporal hemianopia, but further anatomical details are necessary if we are to distinguish between lesions above and below the chiasma, or to deter-

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mine at which point between chiasma and cortex the long pathway has been interrupted.

In general, the fibres from the upper half of the retina lie dorsal from the eye to the cortex, from the lower half ventral, while the macular fibres lie between. In the right optic tract the fibres from the upper nasal quadrant of the left retina and from the upper temporal quadrant of the right retina lie together on the inner and upper surface ; those from the lower quadrants lie on the outer and under surface, while the macular fibres occupy most of the upper outer segment. When the fibres reach the external geniculate body they preserve a somewhat similar relation, the superior quadrants of the right halves of the retinae being projected upon the internal segment of that body, the inferior quadrants upon the external segment, while the macular fibres end in the intermediate dorsal segment (Brouwer).[1] This localization suggests that homologous fibres from the retinae have come together in the external geniculate body, and that homologous fibres run together in the visual radiation.

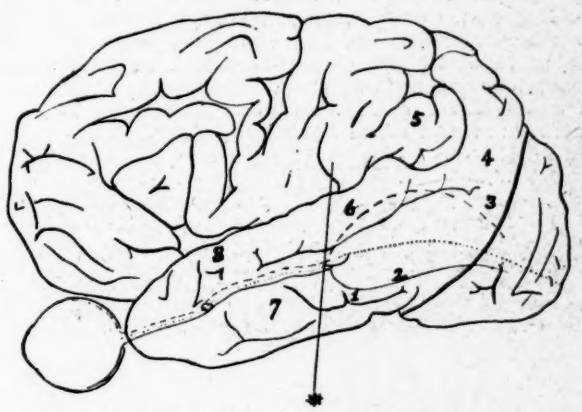
From the external geniculate body the visual radiation spreads, its dorsal fibres curving upwards and backwards from the internal segment, its ventral fibres downwards and backwards from the external segment, and its intermediate fibres more directly backwards. Experimental work does not seem to reveal any pronounced "temporal loop" directed towards the temporal pole. In Poliak's[2] experiments, however, the ventral branch of the visual radiation was not injured, and its complete course was therefore not marked by degeneration. In a coronal section through the right occipital lobe the visual radiation appears like a crescent embracing the lateral aspect of the posterior horn of the lateral ventricle. It consists of three parts: (1) a dorsal horizontal branch from the internal segment of the external geniculate body—which thus carries impulses from the dorsal segments of the right halves of the retinae—and ending in the upper lip of the calcarine fissure ; (2) a vertical branch containing the macular fibres and ending in the most posterior part of the striate cortex ; its upper half carries the impulses from the dorsal quadrants of the homonymous hemimaculae, while its lower carries those from the ventral ; (3) a ventral horizontal branch from the external segment of the external geniculate body, terminating in the lower lip of the calcarine fissure, and conveying impulses from the ventral segments of the right halves of the retinae.

These experimental results, taken in conjunction with the clinical observations of Gordon Holmes[3] and others, indicate that there is a fixed geometric projection of the retinae upon the cortex of the striate area. No segment, not even the fovea centralis, has a diffuse or bilateral representation in the cortex.

The striate area is that part of the occipital cortex which forms both lips of the calcarine fissure in its whole extent, and extends for a short distance on to the lateral aspect of the occipital lobe. On the right side the fibres which come via the visual radiation from the most nasal part of the left retina terminate in the extreme anterior part of the fissure ; those which come from the right halves of the retinae terminate more posteriorly, and the most posterior area receives the fibres from both homonymous hemimaculae. To state these facts in terms of the visual fields, the peripheral part of the left visual field is projected on the anterior part of the right visual cortex, the central part on the posterior. The floor of the fissure represents the horizontal meridian of the retina.

We may divide the visual pathway in so far as it is commonly involved by intracranial tumours into five sections: (1) the intracranial part of the optic nerves ; (2) the optic chiasma ; (3) the optic tract ; (4) the visual radiation ; and (5) the striate area of the occipital lobe.

I shall confine my remarks to my personal experiences or perimetry in cases of tumours affecting the optic tract and the optic radiation. These sections of the visual pathway lie particularly in relation to the temporal lobe of the brain. It would simplify description and give a more accurate basis of comparison between series of cases if we divided the temporal lobe into a pre-geniculate and a post-geniculate area by a coronal plane at the anterior portion of the external geniculate body (see Diagram). The

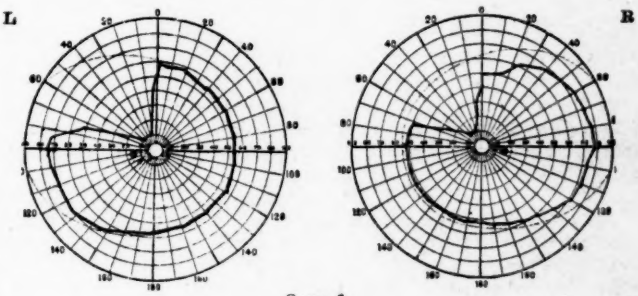


The asterisk indicates plane through anterior end of external geniculate body. Broken line marks fibres from upper half of retina, and continuous line those from lower half. Dots indicate macular fibres ; numbers refer to sites of tumours in the cases. Both right- and left-sided tumours are represented as left.

pre-geniculate corresponds almost exactly to the anterior half of the lobe ; the post-geniculate to the posterior half. Then if a definite "tract" defect of the visual fields can be established in contradistinction to a "radiation" defect each part of the temporal lobe has its own burglar alarm, provided that the temporal "loop" of the optic radiation described by Meyer does not exist. I have selected the cases with partial visual defects, for obviously a complete homonymous hemianopia might be caused by interruption of the visual pathway anywhere from chiasma to cortex.

Tumours of, or Involving, the Post-geniculate Part of the Temporal Lobe

Case 1.—M.D., aged 13. Admitted May, 1931. Petit mal since age of 4. Two major epileptic attacks at 12. Recent development of double papilloedema. Left upper quadrantic hemianopia. Slight lower facial weakness left side. Operation. Haemangiomatous cyst, size of orange. The mural nodule was situated (1, on Diagram) at anterior inferior portion of cyst.



CASE 1.

Case 2.—D. O'B., aged 39. Admitted April, 1933. Attacks of unconsciousness for three months. Occasional dizziness. Gradual deterioration of memory and slips in writing and speech. Sensory aphasia. No headache, no vomiting. Left anosmia. Bilateral papilloedema. Paresis right side of mouth. Right upper quadrantic defect. Operation. Glioblastoma with small cyst immediately below the root of the descending horn of the left ventricle (2, on Diagram).

Case 3.—E. M., aged 28. Admitted August, 1932. Two months' history of headache and vomiting; fourteen days diplopia. Double papilloedema. Partial right hemianopia. No other localizing symptom. Operation. Angioblastoma left side of tentorium invaginating occipital lobe up to the point marked 3 in Diagram.

Case 4.—A. O., aged 23. Admitted January, 1921. For four years suffered from sudden "lapses" or loss of memory, ushered in by circles of light before the left eye. For six months attacks of "biliousness." Recent onset of double papilloedema. Left homonymous hemianopia. No other localizing sign. Ventriculography showed occlusion of posterior horn of right ventricle. Operation. Astrocytoma size of plum (4, on Diagram) in medial wall of large cyst, which extended downwards and forwards.

Case 5.—M. L., aged 22. Admitted April, 1926. Headache started six months before admission, followed in two months by vomiting in the morning. Sensory aphasia, astereognosis right hand. No motor symptoms. Right homonymous hemianopia congruous incomplete in upper quadrants. Operation. Glioblastoma size of cricket ball in left parietal lobe extending downwards into upper part of left temporal lobe (5, on Diagram).

Case 6.—J. G., aged 16. Admitted July, 1922. Long history of attacks of severe headache and vomiting latterly associated with dimness of vision. Double papilloedema. Right homonymous hemianopia complete in lower quadrant. No other localizing sign. Operation. Large gliomatous cyst in posterior half of left temporal lobe with soft tumour in anterior wall (6, on Diagram).

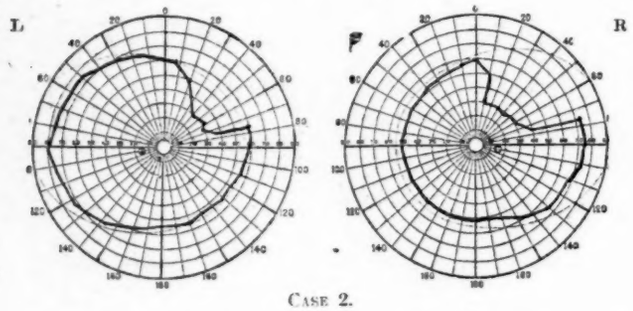
Tumours of the Pre-geniculate Portion of the Temporal Lobe

Case 7.—A. K., aged 23. Admitted October, 1926. Attacks of giddiness for eight years. Double vision three months, then headaches and vomiting in the morning. Occasional tenderness of scalp over left ear. Slight choking both disks. Sector defect right visual field of left eye; on one occasion there was a suggestion of the defect being homonymous. No other localizing symptom. Operation revealed soft meningioma, size of walnut, indenting the middle of the second temporal convolution on the left side (7, on Diagram).

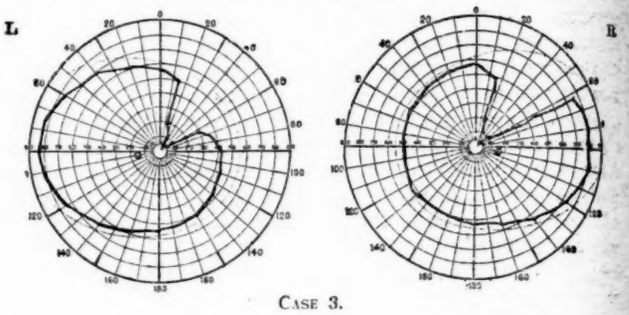
We have had several tumours involving the anterior part of the temporal lobe, but they either had complete homonymous hemianopia, or perimetry was impossible because of lack of co-operation. One of these (8, on Diagram) had full fields as tested by the confrontation method.

DISCUSSION

I need not discuss these cases in detail; the charts considered with the sites marked in the diagram speak for themselves. I would draw attention to the presence of upper visual defects in the first three cases. The defects were not always strictly congruous, but congruity depends on the condition of the patient as well as on the skill of the perimetrist. In the six post-geniculate cases a diagnosis was made not of a tumour of the temporal lobe, but of a tumour involving the visual radiation, and operation was planned accordingly. In each case the growth was radically removed. One of the cases of glioblastoma (Case 5) survived two years; the rest are alive to-day—one twelve years, one eleven, one two, one nine months, one three months. Case 7 has been perfectly well since her operation six and a half years ago. In each case perimetry gave essential information, and perimetry is justified of her results.



CASE 2.



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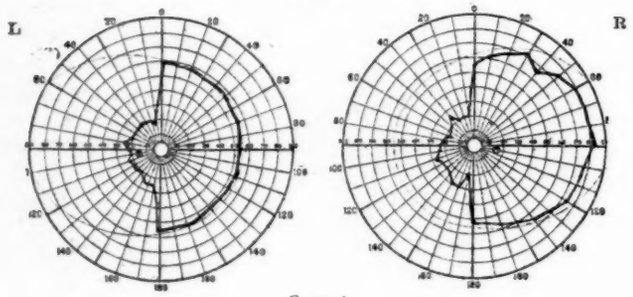
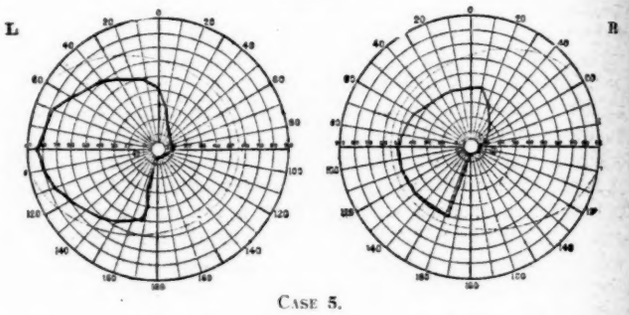


CASE 4.



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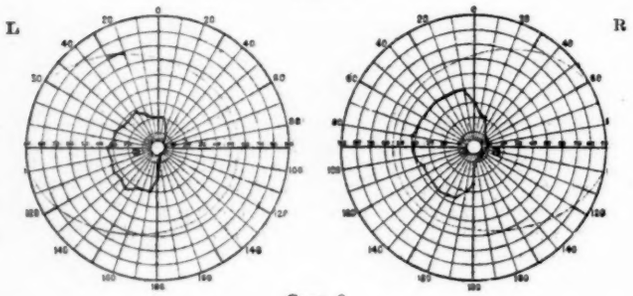

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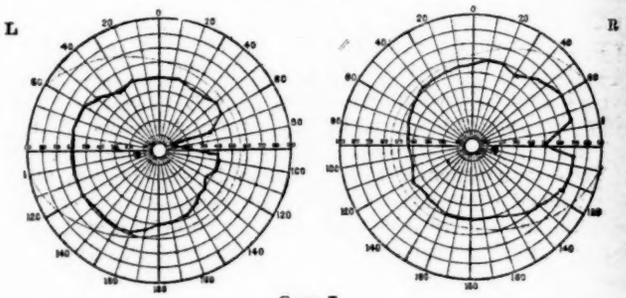

CASE 7.

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FIELDS OF VISION IN INTRACRANIAL LESIONS *

BY

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In the first place it is necessary to state clearly what is meant by the expression "fields of vision." Until recently the examination of the field of vision meant simply the demarcation of the extent of the seeing field and the position and shape of blind areas. Modern perimetry includes, in addition to the separation of blind from seeing areas, an estimation of the functional efficiency of the whole field. The normal field is not a field having merely normal extent, but one having, in addition, normal acuteness all over its area. When defects are found the degree of visual impairment must be estimated, and also the functional value of the apparently unaffected parts.

This *quantitative* perimetry is carried out by the use of serial stimuli varying from a test object of only 1 mm. in diameter to a strong electric light, on the same principle as Snellen's test card for central vision. In this way the "characters" of field defects are elicited. These are (1) position, (2) shape, (3) size, (4) intensity, (5) uniformity, (6) margins, and (7) behaviour or course. Two other features require investigation—namely, the presence of *proportion* or *disproportion* and, in cases of homonymous hemianopia, the presence of *congruity* or *incongruity*.

The examination of the field is usually carried out by moving test objects of different sizes along the arc of a perimeter or in front of an extensive black background, the screen or campimeter. Elaborate instruments have been devised, but frequently, and perhaps more especially in cases of intracranial lesion, the simple confrontation test, carried out by the examiner moving his hand or some object in front of the patient's face, provides information of the greatest value. This test is often omitted, not improbably on account of its simplicity.

It will be seen that quantitative perimetry demands much more than the mere demarcation of boundaries between grossly differing parts of the visual field. Only when full data have been ascertained are we in a position to proceed to the interpretation of the field changes and the diagnosis of their cause.

These characters require little explanation. The *intensity* of a defect means the degree of blindness present, and the *uniformity*, the relative distribution of the blindness within its area; the *margins*, the nature of the edges, whether abrupt or sloping. The examination of these characters constitutes *analysis* of the defect, and is very important. The blind half field in hemianopia, for example, may be found on analysis to consist of two quadrants of different intensities, or the composite nature of a central scotoma may be revealed. The *behaviour* includes the mode of onset and course.

Under normal conditions the fields for a coloured—for example, a red—object and a white object of the same size preserve a certain relationship in regard to area. When this is present in pathological conditions, as, for example, in concentric contraction of the field, *proportion* is said to be present. In certain abnormal conditions the field for the red object may be unduly small in proportion to the amount of reduction for white. This is a simple example of the presence of *disproportion*.

The nerve fibres from each retina are gathered into the optic nerve, and, as you know, at the chiasma separate into the crossed and uncrossed bundles. In the optic tract the crossed fibres from the one side join with the uncrossed fibres from the other, and before, or by the time that, the external geniculate body is reached, the fibres from corresponding areas of the homonymous halves of the two retinae have come to lie in close juxtaposition. Thus a single lesion in the visual nerve pathway before this juxtaposition has been attained might produce a defect in one field only, or, when both fields are affected, defects which, though symmetrical in position and similar in shape, are more extensive, more intense, or earlier in appearance in one field than in the other. In cases of homonymous hemianopic field change defects of this kind are *incongruous*; *congruous* homonymous hemianopic defects are simultaneous in appearance, coextensive, and equal in intensity in the two fields. It will be seen that the establishment of congruity or incongruity has a localizing value, since all hemianopias due to suprageniculate lesions must be congruous.

There is, however, an exception to this rule, owing to the fact that the temporal and nasal portions of the field are not normally coextensive, the temporal field being the larger by a crescentic area about 30 degrees wide at its widest part. This area corresponds to the nasal periphery of the retina, to the inner side of the visual path, and posteriorly to the most anterior part of the occipital cortex, and the nerve fibres concerned have no mates, since there are no corresponding temporal retinal areas. It is possible, therefore, in a suprageniculate hemianopia, for the temporal 30 degrees of the binocular field to be affected alone, or for this part to be spared in an otherwise congruous homonymous hemianopia. Thus this isolation of the temporal crescent, or temporal half-moon as it is sometimes called, has a localizing value of its own.

When the field changes have been ascertained the next step is to interpret their meeting and to estimate their significance. Interpretation may be anatomical or pathological. By anatomical interpretation we gain information as to the site of the interference with the visual path, and by pathological interpretation we gain some guidance as to the nature of the lesion. These two forms of interpretation lead us towards the diagnosis, and, together with the behaviour of the field defects, assist us in connexion with prognosis. The same inferences based on the anatomical and pathological interpretation are often helpful in connexion with treatment—for example, in suggesting the best surgical approach to a tumour in the pituitary region. Finally, in patients who present certain symptoms suggestive of neoplasm, together with pronounced changes in the visual fields, an examination of the latter may be of use in determining their purely psychological origin.

We see, then, that perimetry may be of use in indicating the site and the nature of an intracranial lesion—that is to say, the diagnosis—and in helping us in connexion with prognosis and treatment. It is hardly necessary for me to emphasize the point that a diagnosis should never depend on perimetric findings alone, but that perimetric findings should be used as part of the clinical picture on which the diagnosis is based. Thus cases in which other symptoms are absent or minimal are those in which perimetric findings, if present, are of the greatest value. In other cases, in which the site and nature of the lesion may be evident on other grounds, the perimetric findings are always useful and sometimes valuable.

Turning first of all to the relationship of the field changes to the site of the lesion it will be noted that the long intracranial course of the visual pathway from the optic foramen to the occiput gives ample scope for the action of many forms of interference, while, in addition, some intracranial conditions not directly affecting the intracranial visual pathway produce effects on the optic nerves.

* Read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Dublin, 1933.

Fortunately for the clinician the nerve fibre architecture of the visual pathway is so arranged that, on the whole, its elements retain the same relative positions throughout—that is to say, a lesion of one side of the visual pathway at any point, from the optic nerve back to the occipital cortex, will produce a defect on the opposite side of the field.

If we trace the visual pathway backwards from the optic foramen we find that different forms of field defect are produced at different levels, so that it is possible to obtain immediately from the fields a great deal of guidance as to which part of the pathway is involved. For our purposes the pathway may be regarded as consisting of a suprageniculate part, including the cortex and the radiations, and a subgeniculate portion, which is divided into subchiasmal, chiasmal, and suprachiasmal sections. All of these divisions give more or less characteristic field changes which enable the site of the lesion to be established.

We find also that the different parts of the visual path are liable in different degrees to different forms of lesion, so that if the site of the interference is established some guidance is already received as to the probable nature of the lesion. The establishment of the site is based upon the anatomical interpretation of the field defects. The nature of the lesion is based upon pathological interpretation. This form of interpretation depends chiefly upon the behaviour of the field change. Field changes which are rapid in onset, and progress rapidly or variably, correspond to lesions which behave in a similar way. Thus, if anatomical and pathological interpretation are taken together, it is often possible to gain from perimetry very considerable help in diagnosis.

The accompanying table shows in a general way, without going into great detail, the relationship between the different parts of the visual field and the more commonly occurring lesions and the field changes produced.

It is necessary to make special reference to one point in the anatomy of the visual pathway. It has hitherto been believed that the visual fibres on leaving the external geniculate body pass directly backwards in a defined band until they spread out to their distribution in the calcarine area of the occipital cortex, the internal fibres passing to the anterior part of the cortex, the more external fibres to the posterior part. In recent years, however, a different view has been advocated, according to which the fibres of the radiation on leaving the geniculate body divide into two main groups—dorsal and ventral. Only the dorsal fibres pass directly backwards. The ventral bundle is said to pass downwards and forwards into the temporal lobe extending, in a fan-shaped arrangement, as far forwards as the tip of the anterior horn of the lateral ventricle, which it surrounds before turning backwards to the lower part of the visual area of the occipital cortex. This arrangement is known as Meyer's temporal loop. The evidence for this distribution is anatomical, and no clinical proof has yet been produced. If this distribution is correct a lesion of the temporal lobe, either in its upper or lower part if anteriorly situated, or in its lower part if in the posterior portion of the lobe, should produce a superior homonymous quadrantal defect in the fields, and, since the suprageniculate part of the visual path is involved, the defects in the two fields should be congruous.

Surgical removal of the anterior part of the temporal lobe should produce a permanent, congruous, superior, homonymous quadrantal defect on the opposite side. It has been shown, however, by Cushing, that tumours of the temporal lobe produce incongruous homonymous hemianopic field changes which may disappear after operation. We are here faced with two alternatives. Either suprageniculate lesions may produce incongruous field defects, a view which, if proved, would greatly disturb if not totally upset the present basis of the anatomical interpretation of homonymous hemianopia, or we must believe that these temporal lobe lesions affect a part of the visual pathway where interference is already known to produce incongruous field defects. Since the optic tract lies immediately beneath the temporal lobe

The Visual Pathway and Intracranial Lesions

				Field Defect	Usual Lesions
Extracranial			Optic nerve	Enlargement of blind spot. Concentric contraction. Binasal hemianopia.	Papilloedema due to increased intracranial pressure
Intracranial	Subgeniculate	Subchiasmal	Optic nerve	Defects unilateral. Central scotoma. Hemianopic and quadrantic defects.	Tumour or abscess of frontal lobe (Foster Kennedy syndrome). Local tumour. Disseminated sclerosis. Trauma.
		Chiasmal	Anterior angle	Quadrantic temporal scotoma (junction scotoma). Unilateral temporal hemianopia, passing into bitemporal hemianopia, or blindness of one eye with contralateral temporal hemianopia.	Local tumour or aneurysm. Disseminated sclerosis.
			Body	Bitemporal hemianopia.	Local tumour. Disseminated sclerosis. Syphilis.
			Posterior angle	Unilateral hemianopia passing into homonymous hemianopia.	Local tumour.
		Suprachiasmal	Optic tract	Homonymous hemianopia. Sparing of central area uncommon. Quadrant defects common. Defects frequently incongruous.	Local tumour. Temporal lobe tumour or abscess
	Suprageniculate		Optic radiation	Homonymous hemianopia. Sparing of central area common. Upper quadrant defects rare. Peripheral defects due to internal lesions. Central defects due to external lesions. Defects may be ill defined with sloping edges. All defects congruous.	Haemorrhage (?) Thrombosis. Tumour or abscess. Injury.
			Occipital cortex	Homonymous hemianopia. Sparing of central area common. Upper quadrant defects rare. Homonymous hemianopic scotomata. Double homonymous hemianopia with retention of central field. Peripheral defects due to anterior lesions. Central defects due to posterior lesions. Defects sharp-edged and well defined. All defects congruous.	Thrombosis. Tumour. Injury.

it seems justifiable to suppose that this is the part of the visual pathway which is affected, as the incongruity of the field defects would, on this assumption, offer no difficulty.

It is further evident that if cases can be found—and with the progress of intracranial surgery undoubtedly they will occur—in which the anterior part of the temporal lobe has been surgically removed, cutting through a large part of the temporal loop, definite and permanent upper quadrantal hemianopic field defects should be produced.

I have been able to obtain notes of two cases of this kind ; one I saw in association with Mr. Dott, who will refer to it himself, the other was described by Kravitz. In this case the entire temporal and part of the frontal lobes on the right side were removed. Four months later an incomplete, irregular, incongruous, left homonymous hemianopia was found, which affected the lower as well as the upper left quadrants. Since the dorsal fibres of the radiation do not pass through the temporal lobe in Meyer's loop, the field, after such an operation, should exhibit a fairly clear-cut upper homonymous quadrant defect, and since the fibres were completely cut through the defects should be congruous, whether the fibres from corresponding retinal areas lie side by side at this level or not. No such field defect was present, and Dr. Kravitz, in a private letter, has informed me that he also doubts the existence of Meyer's temporal loop, at any rate as a portion of the visual pathway directly conveying visual impulses from the geniculate body to the occipital visual cortex.

In a recent study of the field changes produced by occipital tumours Horrax and Putnam showed that relatively congruous homonymous hemianopia with sparing of the central area was the characteristic feature. An upper quadrantal homonymous defect was not found in their series of occipital lobe tumours. The field changes in temporal lobe tumours differ greatly from these in the frequency of incongruity and of upper quadrantal defects, and the relative rarity of sparing of the central area.

These findings appear to me to afford considerable support to the view that it is the optic tract and not the optic radiation which is affected in temporal lobe tumours.

Turning now to the pathological interpretation of field defects, we have seen that anatomical interpretation has helped us considerably in this direction. A few examples will suffice. In disseminated sclerosis of the chiasma the predominant central position of the defects, their rapidity of appearance, variability, and spontaneous disappearance, agree with the symptomatology of disseminated sclerosis in general.

The slow, relentless development of hemianopic defects due to tumour pressure, the sudden or rapid appearance with possible spontaneous resolution of similar defects due to haemorrhage and thrombosis, are closely related to the development of the corresponding lesions. The presence of disproportion indicates activity of the lesion and progress either in the direction of increase or of resolution. The nature of the fields may be helpful in determining the best surgical approach, and the effects of surgical or radiological treatment may be gauged by repeated perimetric examinations.

The inconsistent and contradictory findings in hysterical and neurasthenic cases are sufficiently characteristic to indicate the true state of affairs.

The foregoing sketch is intended to illustrate the general principles on which the use of perimetry in connexion with intracranial lesions is based. Time does not permit of discussion in fuller detail.

SUMMARY

In the study of intracranial lesions perimetry is of value:

1. In locating the site of the lesion.
2. In assisting the determination of the nature of the lesion.
3. In affording guidance as to prognosis and treatment.
4. In throwing light upon the anatomy of the visual nerve path.

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A NOTE ON VITAMINS IN PRACTICAL EXPERIENCE

BY

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In my paper to the Section of Diseases of Children at the Dublin Meeting of the British Medical Association,* dealing with the practical significance of vitamins in day-to-day clinical experience, I have confined my attention largely to the anti-rickets vitamin D, which, of course, in this country, is the factor of pre-eminent importance. A list of conclusions is, however, included relating to vitamins A, B, and C and certain other practical issues ; and it is the purpose of the present brief notes to summarize the evidence on which these conclusions are based.

VITAMIN A NOT A GENERAL ANTI-INFECTIVE AGENT

Week by week advertisers' announcements are sent to us all by post, or appear in the journals, which rather convey the impression that vitamin A builds up the general resistance to infection and is of value in the treatment of toxaemias and infectious diseases of all kinds. This is claiming far too much. Vitamin A is anti-infective in only a limited way. As I have shown, in collaboration with J. R. M. Innes,[1] the local infections to which vitamin A deficiency gives rise are of a quite special type, being caused by structural breakdown of membranes. There is no change in the general immunity. These scattered, localized infections are restricted in origin to the abnormal membrane, and are set up by chance micro-organisms which would normally prove to be non-pathogenic. There is no reason to suppose that vitamin A could exert any direct bactericidal or similar effect when given in definite cases of infectious diseases and septicaemias caused by the invasion of specific virulent micro-organisms. Dr. Griffith and I showed,[2] for example, that vitamin A had no effect on the spread of experimental tuberculous disease. Again, our colleague Dr. Thomas Moore[3] has found that in human beings dead from the most varied types of infectious diseases there may be abundant reserves of vitamin A in the body, so that little could have been gained by its administration in such cases, and it is obviously no longer possible to

* To be published in a later issue of the *British Medical Journal*.

regard the vitamin as an anti-infective agent indiscriminate in its scope. The original observation which held out the hope of wide positive therapeutic uses for vitamin A was that of Mellanby and Green[4]; it appeared to show that in puerperal septicaemia the mortality was strikingly diminished as a result of vitamin A treatment. Mellanby suggested that many common infective conditions might be due to vitamin A deficiency, including the common cold, acute rheumatism, phthisis, bronchitis, pneumonia, middle-ear disease, ulcerations of mouth and eyes, and inflammations of nasal sinuses. However, later clinical investigations by many workers have shown that vitamin A therapy has failed to have any effect as a prophylactic in respiratory diseases,[5] in the common cold in infants,[6] on the incidence of common infections generally,[7] or in the treatment of pneumonia.[8] As has been agreed by Mellanby, a difficulty in interpreting his original, apparently favourable, results in puerperal septicaemia is the great natural variation in virulence from case to case. Ellison[9] claims to have reduced the mortality rate in measles in young children by treatment with vitamins A and D. In a group of 300 cases so treated there were eleven deaths, and in a similar control group of 300 given no extra vitamins twenty-six deaths. Further statistical evidence will, of course, be needed before the claim can be regarded as definitely established. Ellison points out how there often occurs after severe measles a metaplasia in the respiratory tract resembling that of vitamin A deficiency, and this might be regarded as providing a rationale for the treatment. We may certainly admit that it is in young children—the class studied by Ellison—that any liability to shortage of vitamin A seems most likely to occur (see below).

Vitamin A Requirements

Although we are satisfied that vitamin A is of no value as a general anti-infective agent for indiscriminate use in treating all kinds of infectious diseases it is still important to ensure that enough of the vitamin is given in the diet, as there is full evidence to show that a lack must lead to specific ill effect (including xerophthalmia, or night-blindness, often accompanied by tendency to respiratory infection.[10 11] In many parts of the world avitaminosis A is widespread, while it will come as a surprise to most to hear that in this country it is not quite unknown, no fewer than seventeen cases of xerophthalmia being recorded in one year in a North of England hospital.[12] A recent report from America gives details of thirteen such cases in under-nourished children.[13] As to the more difficult question of partial lack of this vitamin (hypovitaminosis) it is hard to speak with any certainty. The results of Moore[3] for the British Isles and of Wolff[14] for the Netherlands suggest that about 16 per cent. of the population might perhaps be considered to have "subnormal" reserves, but it is difficult to know how to fix the limit for normality. The reserves found vary immensely from one individual to another.

Work by my colleague Dr. W. J. Dann,[15] in particular, has shown that the young of the species receive a surprisingly limited amount of vitamin A *in utero* and in their mother's milk, so that the need for ample provision of this factor *especially at weaning* becomes all the more apparent. Vitamin A is found in most animal fats (except lard) and fish oils; but carotene, which is of equal biological value and is converted to vitamin A by the animal (as shown by Moore at Cambridge), is as readily accessible in green vegetables, carrot, etc. We may sum up the matter of vitamin A dosage by drawing a contrast between it and its fat-soluble companion D. Whereas with vitamin D no common foodstuff contains an abundance, so that supplementary dosing is an absolute essential if the deficiency (rickets) is to be averted, many common articles (any common greenstuffs) contain all that is needed of vitamin A, so that separate dosing cannot be regarded as being so imperative, but merely as an additional safeguard in cases of doubt.

Vitamins B_1 and B_2

Vitamin B_1 deficiency (beri-beri), including the infantile variety, is almost universal in certain parts of the globe, but there is little evidence of any serious lack of this vitamin in this country or in the U.S.A. True, the possibility of some partial want is suggested by experiments recently carried out in America,[16 17 18 19 20] which showed apparently quite conclusively that when sources of extra vitamin B were added to the diet of large groups of infants the growth rate or weight curves, or both, were far ahead of those of the control groups. We must await further tests before dogmatic statements can be justified. Intestinal stasis and lack of alimentary tone is admittedly one effect of vitamin B deficiency, but in my opinion there is no compelling evidence for the widely advocated theory that the prevalence of constipation in this country is due to vitamin B shortage. Pellagra (vitamin B_2 deficiency) has an astonishingly high incidence in the U.S.A. (170,000 cases in 1917; 120,000 cases in 1927: mortality rate about 40 per cent.), but it is not a disease of children, and is therefore outside the scope of our present discussion.

Vitamin C

It is nowadays the recognized orthodox practice to give all bottle-fed infants fruit juice for the purpose of preventing Barlow's disease (infantile scurvy—that is, deficiency of *vitamin C*, recently identified with *hexuronic* or *"ascorbic" acid*). This is an essential procedure, as cow's milk is a rather poor source of vitamin C, and pasteurization may destroy what little there is—this, to a greater or less extent depends on the conditions of the pasteurization, the presence of copper particularly inactivating the vitamin. This question is of much current interest and importance in view of the proposed legalization of compulsory pasteurization—a process which, it may be noted in parenthesis, is of commercial benefit to the dairying interests, since pasteurized milk "keeps" longer and can be sold when staler. We do not know at all accurately to what extent vitamin C underfeeding is current in this country; but the fact that definite outbreaks of scurvy tend to appear (as in Manchester, Glasgow, and Newcastle in 1917) whenever there is a failure in the potato crop suggests that many people must be near the borderline, and that they rely too exclusively on the potato as their sole source of the vitamin. The consumption of other vegetables and salads and fruit should be encouraged: a useful "rule" that has been advocated is to spend as much on fruit and vegetables as you do on meats and fish and, incidentally, the same sum again on *milk*. (Here, of course, we are speaking of children and adults, not young infants.) In Sweden Göthlin[21] believes, from his tests on capillary strength, as measured by the liability to cutaneous haemorrhage under given pressures applied to the skin, that 18 per cent. of a group of country school children were suffering from hypovitaminosis C. E. W. Fish and I[22] find that vitamin C deficiency in experimental animals leads not only to failure in function of odontoblasts (as had been previously observed), but also to faults in enamel formation of the type which precedes dental caries in man. It is quite likely that deficiency of vitamin C—no less than of vitamin D, which has been studied so fully by M. Mellanby—may often be a contributing cause of dental caries.

OTHER NUTRITIONAL FACTORS

I would not wish to close without making at least a cursory allusion to nutritional factors other than vitamins, lest I might seem to convey the impression that vitamins alone mattered. Among the most striking of recent work is that of Mackay,[23 24] who has shown how surprisingly common is iron deficiency in infants, and has published a convincing account of the beneficial effects of its administration in such cases. The observations, too, of Corry Mann[25] on the unique nutritional properties of milk for school children, work which has since been amply confirmed up and down the country, call for special mention.

THEORY AND PRACTICE

In conclusion, we must realize that our problem cannot be divorced from economic realities. Calculation shows that the cheapest diet for bare sustenance costs about 5s. to 7s. a week for an adult, or about 3s. to 4s. for a child.[26 27] This figure assumes a knowledge of how to choose food to the best physiological advantage, and also the opportunity of purchasing it in the cheapest markets. Yet it has been shown that even this minimal sum is beyond the reach of many of the unemployed, whose income falls short of that amount after deducting only for rent, and making no provision whatsoever for such necessities as clothes, heating, etc.[28] The fault here lies not with science, but largely in the mal-organization of society, and sometimes too in a failure to apply or to realize the knowledge which science has already won. In America it has been found worth while to employ whole corps of "nutritionists," whose function is to advise the public authorities as to nutritional conditions and local needs, and to instruct households on the outlay of their budgets.

A summary of these conclusions will be given in the previously mentioned paper.

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A CASE OF UNUSUALLY HIGH EOSINOPHILIA OF OBSCURE ORIGIN

BY

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As the case reported below presents several interesting clinical features and diagnostic difficulties it was thought worthy of being put on record.

CASE HISTORY

A male, aged 39, shopkeeper by occupation, early in May, 1932, noticed himself unusually tired when the day's work was over. Although he worked hard, he had never noticed any ill effects before. As time went on he found himself becoming more and more tired each evening, until early in October he decided to seek medical advice.

His father, aged 78, and his mother, aged 71, are in excellent health; five sisters and one brother are alive, and are all in good health; one sister died of meningitis at the age of 21. He has never been ill in his life except for whooping-cough at the age of 7. He has never been out of Ireland, is very abstemious in his habits, and lives an outdoor life.

When I saw him he complained of weakness, a feeling of nausea, and pains in his epigastrium occurring about one hour after food. He looked anaemic and his skin was sallow; he said he had lost weight. On examination I could elicit nothing abnormal in his abdomen. Liver and spleen were not enlarged. Lungs were normal, but his heart was enlarged and a mitral systolic murmur was present. Urine contained no albumin or sugar. There was no blood in the stools. Reflexes were normal. I gave him a bismuth mixture, and asked him to come back in a week's time. Three days later I was called to see him, and found him in bed complaining of exhaustion and pain in the epigastrium. Examination of the abdomen was again negative, and I sent him into hospital for *x*-ray examination. A barium meal revealed no evidence of gastric or duodenal ulcer, but, on screening, his heart was definitely enlarged. A blood count was then done, showing an eosinophilia of 55.5 per cent. and a red blood count of 2,960,000 per c.mm. With this high eosinophilia I thought it most likely he had a tapeworm, but the usual treatment with ext. filix mas yielded no result. After an interval of three days I again gave him one drachm of ext. filix mas, followed one hour later by a similar dose, but his stools were negative. He was also given santonin, but there were no roundworms or threadworms. Urine and faeces were examined for ova, with negative results.

The report on a gastric test meal was as follows: "Free hydrochloric acid, 40 per cent.; total acidity, 65 per cent.; lactic acid test negative; occult blood reaction positive. There is a small amount of mucus containing flakes of blood. This effect could, I consider, be produced by straining, and if there was difficulty in withdrawing the specimen I would not attach importance to the presence of blood."

His general condition was gradually becoming worse, and, after about a fortnight's stay, he decided to leave the hospital and returned home. Whilst in hospital his temperature went up once or twice to between 99° and 100°. After a week at home his temperature varied each evening between 101° and 102°. He became increasingly restless, and complained very much of insomnia. His anaemia was very pronounced, and I gave him ventriculin by the mouth, alternating this with hepatex intramuscularly. He was now entirely confined to bed, and his liver could be distinctly felt almost a hand's breadth below the costal margin. The stomach symptoms, which had been so marked a feature in the early stages, had now disappeared, but his general condition was very much worse, and he complained of exhaustion

and suffocation. I decided as a last resource to give him 5 grains of quinine sulphate every four hours to steady his temperature, and in the hope that the resulting leucocytosis might be helpful. After continuing this for five days he said he felt better, his temperature became normal, and he felt less exhausted. I then reduced the quinine to 10 grains in twenty-four hours, and he gradually improved, until at the end of three weeks he got up and felt very much better. The quinine was then stopped, and his temperature did not go up again. The liver extracts were continued. He has maintained his progress since, but is still on liver treatment. The following represent the results of the later blood films.

October 20th, 1932.—R.B.C. 2,960,000 per c.mm. W.B.C. normal; differential count: neutrophils 31 per cent., eosinophils 55.5 per cent., lymphocytes 12.5 per cent., monocytes 1 per cent. Haemoglobin 50 per cent. Colour index 0.8. *Remarks:* R.B.C. vary in size, but regular for such low count.

November 14th, 1932.—W.B.C. normal; differential count: neutrophils 33 per cent., eosinophils 55 per cent., lymphocytes 12 per cent.

December 23rd, 1932.—R.B.C. 3,000,000. W.B.C. 12,600; differential count: neutrophils 16 per cent., eosinophils 55 per cent., lymphocytes 27 per cent., monocytes 2 per cent. Haemoglobin 60 per cent. Colour index 1.

February 8th, 1933.—R.B.C. 3,490,000. W.B.C. 17,500; differential count: neutrophils 10 per cent., eosinophils 78 per cent., lymphocytes 11 per cent., basophils 1 per cent. Haemoglobin 80 per cent. Colour index 1.1. *Remarks:* R.B.C. show anisocytosis. Numerous cells 8 to 10 microns. No nucleated R.B.C. No polychromasia. Reticulocytes numerous.

March 1st, 1933.—R.B.C. 3,300,000. W.B.C. 20,000; differential count: neutrophils 12 per cent., eosinophils 76 per cent., lymphocytes 12 per cent. Haemoglobin 65 per cent. Colour index 1. *Remarks:* Reticulocytes numerous. R.B.C. as above.

May 8th, 1933.—R.B.C. 3,390,000. W.B.C. 12,000; differential count: neutrophils 9 per cent., eosinophils 73 per cent., basophils 1 per cent., lymphocytes 13 per cent., monocytes 4 per cent. Haemoglobin 70 per cent. Colour index 1. *Remarks:* The red cells vary in size from 6 to 10 microns. They are regular in shape. No myelocytes found.

DIAGNOSIS

With the definite absence of tapeworm the diagnosis of this case presents a very difficult problem. There is no history of eating raw pork, and there are certainly no signs of trichinosis. Although there was nothing in the history to suggest ankylostomiasis he was given 30 grains of thymol in three successive doses, with negative results. There are no symptoms of filarial infection. There is no localized tumour. No hydatid thrill can be elicited in the liver, and a negative complement-fixation test for echinococcus eliminated the possibility of a hydatid cyst being deeply embedded in the liver substance. Cancer of the liver can be ruled out in view of the patient's improved condition, the absence of jaundice and of any cachectic signs, and the smoothness of the liver surface. Syphilis was thought of, but the Wassermann test was negative. There is no history of gonorrhoea. He never suffered from asthma, any skin disease, or pediculosis.

Recently a few cases of inherited eosinophilia have been reported, but his excellent family history does away with this possibility. Blood cultures were negative. Examination for malarial parasites was negative. The various agglutination reactions for enteric and Brucella groups were negative. The one definite thing about his present condition is his tendency to go down the hill when he is not taking liver in some form. One might therefore reasonably assume that if this were discontinued he would most probably develop pernicious anaemia, considering that even with active liver treatment his red blood count is only about 3,400,000 per c.mm. It is unlikely that the condition is one of the so-called eosinophil-leukaemias, as the total leucocyte count is relatively low. I consider this an unusually interesting case, and am forced to regard it as one of pernicious anaemia with an extraordinarily high eosinophil count.

In conclusion, I wish to thank Dr. W. J. O'Donovan of the pathological department, University College, Cork, for so kindly placing his services at my disposal in gratuitously carrying out many blood examinations and other tests in this case.

ORAL ADMINISTRATION OF NEMBUTAL AS A PRE-ANAESTHETIC MEDICATION

BY

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In embarking upon the pre-anaesthetic administration of nembutal I did so somewhat prejudiced against the drug, as I considered all forms of pre-medication, excluding the use of atropine, to present more difficulties than advantages. It is true that some patients are easily anaesthetized, show no ill effects afterwards, and present no difficulties during anaesthesia when they have previously had a dose of hyoscine or morphine or both. On the other hand, one is often embarrassed by a patient with extremely shallow breathing—even to the point of suspended respiration—when administering ether after hyoscine, and, less frequently, after morphine. The continuous use of CO_2 in such cases may be necessary, but it is none the less undesirable.

There is, of course, no doubt that McGill, who introduced nembutal to this country, gets good results by its intravenous use, but many of us prefer a drug which is not administered in this way, provided that an accurate dosage is possible. In the belief that intravenous medication is only introducing one more danger and complication into the field of anaesthesia, I have set out to explore the uses of the oral administration of nembutal. The results of a 100 consecutive cases are given below, and these include the first few cases, which were deliberately underdosed. There is no harm in giving an underdose of this drug provided that the patient has not been told to expect an amnesia for the time of operation. A small dose calms the patient's fears considerably, and is of definite use.

One of my earliest experiences with nembutal was with a retired Army major, who had been previously primed with regard to the wonders of this drug. At his request I consented to administer it, and he awoke twenty minutes after the operation, spending the remainder of the day ringing his bell for a nurse merely to say, "I'm not asleep, and I ought to be!"

INDICATIONS AND TECHNIQUE

In the first place I consider it essential that the anaesthetist should see the patient previously and himself assess the dose. To be shown a sleeping patient to whom nembutal has already been administered and to be asked to anaesthetize him without awakening or examining him is not only embarrassing, but definitely unfair to both anaesthetist and patient, although one would undertake it in the case of a straightforward surgical procedure in a healthy patient who lives at a long distance after a telephone conversation with his physician.

The nembutal should be given by mouth in cachets, with a small drink of water* one hour before operation. At the same time the patient should have a subcutaneous injection of atropine, and, if not to be anaesthetized in bed, be placed on a stretcher or trolley. The dose varies from 3 to 6 grains—occasionally 1½ grains is sufficient to answer a purpose. It is often advisable to allow the patient 1½ grains on the night before operation. If this last course is adopted it must be reckoned with in prescribing the dose for the next morning.

In assessing the dose one must consider: (1) Sex. (2) Age. (3) Body weight. (4) Physical fitness (being wary with toxic patients, particularly if they have septicaemia).

* Even after a patient has had his stomach washed out for a gastrectomy there is no harm in doing this. It is effective, and is a great comfort to him.

(5) Temperament. (6) The particular disease from which the patient is suffering.

Taking these considerations seriatim:

1. The sex seems to matter little in the smaller doses, but in the larger doses makes more difference. The type of man who requires a very large dose will probably need 6 grains, whereas the woman who requires a large dose will do with 4½ grains, particularly if she has had 1½ grains on the previous night.

2. Children hardly come within the scope of this paper, but very large doses are never necessary in the average patient up to the age of 25 years. A possible exception to this statement will be found in Case 86 in the cases reviewed. It is wise to consider reducing an estimated large dose to a normal one if the patient is over the age of 65—for example, Case 7.

3 and 5. The body weight is a factor to be considered as in the administration of all other drugs, but temperament plays such a remarkable part in the patient's reaction to nembutal that the former becomes somewhat insignificant. A fat woman weighing 12 to 14 stone will snore loudly and not awaken after a dose of 3 grains, which is often insufficient for a thin nervous woman of 8 stone.

4. The toxic patient has a reduced power of elimination, and a smaller dose should be given. If it is considered that 3 grains would be just insufficient, it is better to give 1½ grains the night before and 3 grains the morning of operation, than to give a single dose of 4½ grains.

6. The peculiarities of the actual disease must be considered. For example, a patient suffering from Graves's disease requires a greater dosage than even the nervousness would lead one to expect (see Case 31).

The correct dosage depends upon assessing the relative significance of the above factors, taking into account any psychological factor which is known. As an instance of the latter, a patient who has been terrified by a previous anaesthetic, largely comprising asphyxia, must be classed, although apparently placid and normal, with the very nervous. A little regular practice makes this apparently difficult and inaccurate method an easy task; for, after all, is not the experienced physician's dose of any drug more accurate than a rule-of-thumb method which attempts to be general and fool-proof?

To those who wish to use this drug for the first time I would suggest the following procedure. Choose ordinary healthy adult patients for simple surgical procedures—such as cases of interval appendicectomy—and administer 1½ grains of nembutal at night and 3 grains in the morning without telling the patient what to expect. Induction should be done with pure ether, whether they are awake or not. About 30 per cent. of these cases will be underdosed, but no possible harm can be done, and it will very soon be apparent to the anaesthetist which type should be given 4½ grains and which should have the overnight dose in addition. The consideration of the special points mentioned will help in dealing with abnormal cases later.

Case Records and Results in 100 Cases

A few cases of particular interest are described below:

Case 11.—Major; for tonsil dissection. Given 1½ grains at night and 4½ grains one hour before operation. Spoke and resisted induction of anaesthesia. Anaesthetic far from easy and patient awoke within twenty minutes of being put back to bed. This was a definite underdose, and I regard the case as an absolute failure.

Case 86.—Married woman, aged 24. Extremely frightened, about 11 stone in weight. Operation for interval appendicectomy. Dose: 4½ grains one hour before operation. Awakened by nurse after being taken to the anaesthetic room, but was very placid. Spoke to anaesthetist, addressing him by name. Amnesia complete. No nausea. Conscious of surroundings about four hours later.

Case 7.—Man, aged 83. Operation: epithelioma of lip for insertion of radium under local anaesthetic, general condition very poor. Dose: 3 grains forty-five minutes before operation. Slept through the operation.

Case 31.—Girl, aged 21. Very serious Graves's disease. Admitted with pulse rate of about 140. Exophthalmos + +, tremors + + +, von Graefe's sign +. Breathlessness and palpitation always present, and at times distressing. Three weeks in hospital brought the pulse rate down to between 88 and 100, but it rose rapidly again, and at the time of operation was 96 to 128. Basal metabolism figure was plus 60 per cent. The dosage and the results were as follows: Saturday night, 1½ grains. Sunday, 10 a.m., 3 grains. Neck prepared for operation and patient placed on a stretcher. The drug had apparently no effect. The patient was reading a newspaper and spoke normally at noon. Monday, 9 a.m., 6 grains. Patient prepared as before. Did not stir on being touched at 9.45 a.m. Awoke and became restless on removal to theatre. Easy induction with pure ether, and anaesthesia maintained intratracheally on very little ether and no other anaesthetic. Restless on recovery. Morph. sulph. 1/4 grain at 1.45 p.m. and morph. 1/6 grain at 5 p.m. The patient had an amnesia from noon Sunday to noon Tuesday! She went home in a fortnight with a pulse of 70 to 88, and has had no trouble since (seventeen months).

Case 72.—Man, aged 63; suffering from pyloric stenosis due to carcinoma. Admitted to hospital as urgent; was very exhausted, with dry skin; described as "completely dehydrated." He was kept on a continuous intravenous drip saline for two days and then, although still very ill, it was decided that his condition was unlikely to improve further. He was given 3 grains of nembutal by mouth after a stomach wash-out one hour before operation, and this rendered him unconscious and slightly restless. Operation was performed at 2.15 p.m.—easy induction, and anaesthesia and condition little altered after Polya gastrectomy. The patient died at 3 a.m. without regaining consciousness.

The following table gives an idea of the results obtained with various doses as accurately as they can be tabulated, and takes into account all cases, whether purposely underdosed or not, with the exception that ten cases have been omitted because, either by administration of some other drug or by alteration of the procedure described—for example, a change in the time of administration—they cannot be classified under any of the headings used. Unfortunately, I cannot give reliable figures with regard to post-operative restlessness, but roughly speaking my experience of it tallies with McGill's figure of 10 per cent. It tended to occur in women rather than men, and after large doses rather than small—although a large dose suggests a nervous patient, which somewhat discounts this last observation.

Dose	Number anaesthetized without movement or awakening	Apparently awake but amnesia complete	Cases having merely a faint memory of seeing the anaesthetist	Nervous patients rendered calm and placid, not asleep and no amnesia	Dose not effective	Total (90)
1½ grains at night, and 3 grains one hour before operation	6	nil	4	2	1	13
1½ grains at night, and 4½ grains one hour before operation	6	3	1	nil	1	11
1½ grains one hour before operation	nil	nil	nil	3	nil	3
3 grains one hour before operation	15	5	3	17	5	45
4½ grains one hour before operation	7	4	5	nil	2	18

The 100 cases include three patients who died at various times after the operation. The only one to which the anaesthesia or nembutal might have in any way contributed is Case 72.

I am obliged to all the surgeons at Northampton for a completely free hand in dealing with these cases. Their comments have been fair and helpful, and I have had every opportunity to see my patients beforehand and to follow them up afterwards.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

ACUTE RETROBULBAR NEURITIS, SECONDARY TO DOUBLE POSTERIOR ETHMOIDITIS

The following case seems sufficiently instructive to merit record.

Nurse R., aged 23, developed what was probably an influenzal rhinitis on January 7th, 1933. There was noticeable post-nasal discharge. She found that her eyes felt heavy and that her vision was beginning to fail on January 8th. On January 11th she was referred to the ophthalmic department of her hospital. Vision was found to be barely 6/60 in each eye. The only abnormality revealed by external examination was the inability of the pupils to remain contracted to the direct stimulus of strong light. The pupils so to speak curtsied when the light was thrown on them, a symptom which is almost pathognomonic of acute retrobulbar neuritis. Ophthalmoscopic examination revealed no abnormality. Examination of the visual fields showed an absolute scotoma involving the fixation and blind spots in each eye—the so-called caeco-central scotoma. Refraction by retinoscopy showed emmetropia. There was no evidence of nasal abnormality by rhinoscopy. The pharynx was normal. Clinical examination showed no other abnormality. The patient had a healthy appearance. Her history was excellent and diplopia had never been complained of. *X*-ray examination of the nasal sinuses was carried out by the Graham Hodgson technique. The report stated that by occipito-frontal radiation there was some cloudiness on the left side. In the occipito-mental position both antra were "positive" but contained no fluid, both the anterior ethmoidal sinuses were "positive," and the frontal sinuses appeared normal. Vertico-mental radiation showed normal sphenoidal sinuses. Oblique radiation of the posterior ethmoidal sinuses showed definite involvement of the sinus on each side.

As energetic diaphoresis combined with local and general treatment failed to improve the visual defect I operated upon the nasal sinuses on January 17th. The antra were opened by the canine fossa route. The lining mucosa of the alveolar sulci was oedematous and showed evidence of subacute inflammation. I then removed the ethmoidal cell system by my transantral line of approach, including, as is my custom, the party wall between the posterior ethmoidal and sphenoidal sinuses. I found a condition of hyperplastic ethmoiditis with polypi. The patient was able to get up within a week. Progressive improvement in vision was noticeable to the patient from January 20th, and when tested on February 2nd she was able to read 6/6 easily with each eye.

DISCUSSION

According to Behr, the optic nerve may be implicated in cases of nasal sinus infection in one of the following ways:

1. Neuritis as part of a generalized orbital complication—(*a*) simple exophthalmos, due to pressure exerted by the orbital walls of a sinus, as a mucocele or pneumatocele; or (*b*) inflammatory exophthalmos due to the spread of sinus inflammation by way of a thrombophlebitis, periostitis, or lymphangitis, and culminating in an orbital cellulitis or abscess formation.
2. Isolated neuritis, with or without orbital symptoms. This variety of optic neuritis occurs when inflammation of one of the posterior nasal sinuses involves the optic canal.

Whilst it was obvious that in the case under review I was dealing with the latter type of neuritis, it was necessary to exclude with reasonable certainty the other potentially causative factors before initiating the surgical treatment actually carried out. Briefly these are:

1. Haemorrhage into the sheath of the optic nerve (traumatic). This was excluded by the history.
2. Prodromal (or early) symptom of disseminated sclerosis. This could not be absolutely excluded, but, in view of the absence of previous diplopia, the history of onset, and the positive *x*-ray findings, it could be very largely discounted.
3. Other local general or specific infections or toxaemias. These were not demonstrable.
4. The familial form of neuritis (Leber's atrophy). This usually starts soon after puberty, almost invariably attacks males, and, whilst both eyes are ultimately attacked, there is a variable interval between the onset in each eye.
5. The so-called idiopathic cases. I have never met such, and I am of opinion that this diagnosis is at best a refuge for ignorance.

The prognosis of the disease in question is good. If the causative factor is promptly removed the vision should be almost, if not quite, restored to normal. It may be argued that the local inflammation might have subsided *sui generis*, and that, on this hypothesis, the resort to a double major operation was precipitate. My answer to this objection is that in these cases irrevocable damage to the vision may rapidly occur. It must further be remarked that the *x*-ray diagnosis suggested rather an acute exacerbation of a chronic ethmoiditis than a primary acute condition. In the presence of ethmoiditis the actual occurrence of an optic neuritis is, in the writer's conviction, dependent not only upon the absence of the dural and arachnoid coverings of the nerve after its passage through the optic foramen, but to some anatomical hazard, the presence of which can be better deducted than proved. The fact that this affection may constitute a prodromal symptom of disseminated sclerosis, the aetiology of which is still obscure, does not, according to Bergmeister, contraindicate drainage of the nasal sinuses in question, because Rethi has demonstrated an improvement in this disease in a number of cases following the operation.

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Reports of Societies

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

Annual Meeting

The annual summer gathering of the Association took place last month under the presidency of Dr. F. DOUGLAS TURNER, medical superintendent of the Royal Eastern Counties Institution for the Mentally Defective, Colchester. Some of the meetings were held at the town Hall, Clacton, some at the Colchester institution, and at the Severalls Mental Hospital. The programme included a most instructive series of demonstrations of the capacity, in useful work and recreation, of the various grades of patients, some of it of a very high order.

The president chose as the subject of his inaugural address "Mental Deficiency." Conceding to France the first efforts, in 1837, to ameliorate the lot of defectives, he sketched the development of the movement in this country, including the founding of the Eastern Counties Institution, which now had an endowment fund of £50,000 and 400 acres of land, none of which had been provided by any local or statutory authority, and a further extension had now been planned for an additional 444 patients. There must always be a certain proportion of mental defectives under care and confined to institutions, but he deprecated the alarmist view which was expressed in some quarters, such as by a pamphlet emanating from a society which set out to improve the race, in which occurred the words, "If all mental defectives could be prevented from having children, the number of defectives in the country would be halved in about three generations," a statement which found no warrant in

present-day knowledge. But there might be some increase in the total number of defectives due to a lowered infant mortality, and also to a greater longevity among defectives. It should be remembered that, far from being a single disease entity, mental deficiency was the sum of a number of conditions owning a variety of causes. He had been greatly struck in his experience by the great effect of environment on the production of certified defectives. The legal definitions of defectives were social, not based upon specific tests nor upon degree of educability; hence a person classed as a defective in a city might pass as normal in a rural community. He considered that the great hope for the future lay in attacking the environment of these patients. More than 10 per cent. of the patients under his care were out on licence. He, however, insisted that all new cases must have the advantage at first of skilled examination, training, and classification. The great aim must be to stabilize the defective and lead him back to the world.

Dr. R. M. STEWART read a paper on "Juvenile Types of General Paralysis." In this condition, he said, mental symptoms were imposed on a mind which, from earliest years, had shown evidences of imperfect development, and often the symptoms differed materially from those seen in adult general paralysis of the insane. Figures as to the incidence of the junior form of the disease were apt to be misleading, as general and neurological hospitals were now accepting more of these cases. It seemed clear that about 1 per cent. of all cases of congenital syphilis developed general paralysis; but the symptoms were usually insidious, and if there were early focal signs the case might seem to be one of disease of the covering and supporting tissues of the brain rather than of the parenchymatous elements. It was not uncommon for the patient to survive ten years or longer, but epileptic convulsions early were an unfavourable sign. These children did not as a rule show the syphilitic facies. Among the most frequent motor signs were pupillary changes, but the Argyll Robertson pupil was less common in the juvenile than in the adult type. An early motor sign was ataxia and a clumsy gait. A profound and progressive dementia removed what little intelligence the patient might have had. In this juvenile type there was noted a smallness of cerebral hemispheres and atrophy of the folia of the cerebellum. But little that was hopeful could be said about the treatment.

Professor LANCELOT HOGBEN read an exhaustive paper on "The Interaction of Heredity and Environment." Speaking as a biologist, not as a medical man, he said that in the world of science it was generally found that virile opinions were those which were fortified with a rather effeminate equipment of evidence, and this was true of the much-discussed subject of mental inheritance. This, from the biological standpoint, was not a problem of genetics alone. It demanded all that the geneticist could contribute to the recognition of how the characteristics of an organism were influenced by those of its ancestors, and it called for all that the nerve physiologist could impart as to how the characteristics of an organism were influenced by the changing pattern of stimuli to which it was subject. It was now possible to define what was meant by differences due to genes and differences due to environment. The effectiveness of selection depended on the kind of transmission involved, and the acquisition of more knowledge of the part played by the uterine environment in determining mental defect could help unravel the way in which gene differences, associated with mental defect, were transmitted.

Dr. A. G. DUNCAN read a paper on "The Relation of Cholesterol to Mental Disorder." He said it was noted that when a dull patient became agitated his serum cholesterol was definitely lowered. In mood psychoses, also, the cholesterol content was high during remissions, and it fell again with the patient's relapse into the manic or the melancholic state. Similar changes were found during chronic alcoholism. His research showed that lecithin and cholesterol were, in some respects, antagonistic to one another; and it seemed that the greater the amount of cholesterol present, especially in proportion to lecithin, the lower was the metabolic activity of the cells. Blood cholesterol was lowered in cases of heightened emotion and in quickened psychomotor activity; it was raised in conditions of apathy and diminished psychomotor activity.

Dr. EDGAR DOLL read a paper on "Community Control of Mental Deficiency in U.S.A." It was estimated, he said, that 1 per cent. of the total population of the States were mentally deficient and at least 2 per cent. of the whole school population. Only 6 per cent., however, were cared for in institutions; the cost of the latter was about £100 per head per annum. Few schools tried to do anything for the really low grade. Many mental defectives were placed out on parole, and this made institutional care possible for a larger number. An important aid was the visiting teacher, especially in rural districts, where the problem of caring for these unfortunate people was a difficult one, largely because of the great distances to be travelled. In the United States sterilization was better received than in England, and selective sterilization was the form favoured.

Dr. EMANUEL MILLER, in a paper on "Emotional Factors in Intellectual Retardation," said that, admitting that both imbeciles and idiots had exhibited disturbances of behaviour and emotional control, one need not deny that such phenomena were secondary to the neural defects, or that they occurred concurrently as indications of general congenital inferiority. Moreover, a class of defectives of high grade could be marked off in whom the psychological shortcomings must also be regarded as secondary. The problem of cause assumed a different complexion when dealing with that considerable group of children who had an intelligence quotient of about 80 per cent. Of those children who could not be dealt with legally, or who passed muster in the school under the name "dullard," little could be said as to number or distribution, as unless intercurrent illness brought them to necropsy nothing could be stated as to cerebral degeneration in them. In the cases on which this paper was based there was no history of any acquired disease of the nervous system nor of congenital syphilis, and the cases of mental retardation studied for this purpose had an intelligence quotient of about 80. It was because of the action of these cases as brakes upon industry, and the way they loomed into juvenile offence before the courts, that he had made them a subject of special study. A main contention of Dr. Miller was that as a result of treatment emotional disturbances were diminished greatly, and with that improvement on the affective side there was improved application to school work and a better score on mental testing. Disturbances proved inhibitory to intellectual output. Mental tests, if treated qualitatively as well as quantitatively, would be of inestimable value, in skilled hands, in deciding in the first instance on the presence or absence of an emotional handicap in the child.

The winners of the Association's prizes for the year were: *The Gaskell Prize*, divided between Desmond Curran and Louis Minski, both of the Maudsley Hospital, London; each received a gold medal and fifteen guineas. *Bronze Medal and Prize*: David Neil Parfitt, Warwick County Mental Hospital, Hatton. *Divisional Prize*: John S. Sharpe, County Mental Hospital, Stafford.

According to the annual report for 1932, of St. John's Hospital for Diseases of the Skin, the extension of the in-patient department rendered it possible to keep the increased complement of forty beds in use during the whole of the year. The cost of the alterations and extension, amounting to £3,077, was met out of general funds without any special appeal for help. It has not yet been possible, however, to proceed with the provision of beds for paying patients. The income from voluntary sources continues to show a downward tendency, but there was a balance of income over expenditure, largely due to payments made by patients. In connexion with the London School of Dermatology the usual course of lectures for post-graduates was held. Mention is made of the great services rendered to the hospital by the late Earl of Chesterfield, who had been its president from 1892 till his death last January.

Reviews

GASTRIC ANACIDITY

We welcome the appearance of a book on *Gastric Anacidity*,[1] by Professor BLOOMFIELD and Dr. POLLAND. The authors themselves have done much original work on the subject, and in the present book they have combined in an admirable way their own studies with a summary of the development of knowledge of this obscure form of stomach disorder. They have searched out the original papers, and the value of the book is enhanced by the carefully selected bibliography appended to each chapter. Gastric anacidity in clinical practice is said to be present when a yellow colour results from the addition of di-methyl-amino-azobenzene (Töpffer's reagent) to stomach contents, obtained usually by siphonage of a test meal, while a red colour is said to indicate free acid. Since this reagent changes colour at approximately *p*H 3.0–4.0, a sample which gives a yellow colour may contain a good deal of acid masked by buffers, as can be demonstrated by adding alkali and using another indicator which changes colour about the neutral point (*p*H 7.0), or by direct determination of the *p*H of the specimen. In the ordinary test meals buffering substances are necessarily present, and to avoid these it is suggested that tests should be made with gastric juice withdrawn by a tube after stimulating the stomach secretion by subcutaneous injection of histamine. The authors would then divide the subject into true anacidity—in which, on repeated tests, no free acid is produced even after histamine stimulation and the reaction of the secretions remains neutral—and false, in which no free acid is shown after the conventional test meals, but after sufficient stimulus acid can be secreted. All grades of subacidity up to normal occur, but it is with the condition of true anacidity that the authors deal.

The term "achylia gastrica" is sometimes used as a synonym, but acid and ferment fail hand-in-hand, and in all instances of true anacidity secretion of ferment is reduced to a negligible minimum. The authors hold, therefore, that the term "true anacidity" implies such defection of ferments, and no second designation is necessary to confuse the nomenclature. That such true anacidity may occur in apparently healthy people was first shown conclusively by Bennett and Ryle in 1921: they examined 100 healthy young adults and found anacidity in four. Bloomfield himself, with Keefer, analysed the data from 1,500 consecutive gastric analyses made on patients in the medical wards of a general hospital. Of these, 26 per cent. were instances of anacidity, and after elimination of the patients with known disease of the stomach, such as carcinoma, and pernicious anaemia, the number of "anacidities" among the remainder came to 20 per cent. In a further series of 654 cases classed as normals the percentage of true anacidity—that is, of those showing no secretion of acid after histamine—was 11.9. On the whole it is found that the rate of secretion lessens with advancing years and the frequency of anacidity increases in the higher age periods, suggesting that lack of acid is, as a rule, an involutional phenomenon. There may be in a certain number of people a congenital absence of acid formation, and there is evidence that this may tend to run in certain families; or anacidity may occur in some people from failure to last the course (abiotrophy) or as the result of preceding gastritis. Gastric lesions of the general nature of gastritis have been found at necropsy in most patients with anacidity, but it remains to be proved that such lesions, when slight, are the direct cause of the disturbance of secretion, since changes of similar character may be found in people with normal acidity. Further, people with anacidity have been observed to live in good health for years, despite the secretory disorder. However, the association with pernicious anaemia and cancer of the stomach is so constant that a causal relation may be accepted until disproved. Association with many other disorders has been described, but a statistically valid correlation has, in the authors' view, not been established. In cases of unexplained anacidity no special treatment is required; but if digestive symptoms, especially diarrhoea, are present, administration of diluted hydrochloric acid is often helpful. The book is lucid and honest, and is a thoroughly reliable guide through this rather involved subject.

[1] *Gastric Anacidity*. By A. L. Bloomfield, M.D., and W. Scott Polland, M.D. Its Relations to Disease. London: Macmillan and Co. 1933. (Pp. 188; 21 figures. 12s. 6d. net.)

HEALTH AND THE STATE

In the publisher's note *The Health of England*,[2] by Dr. T. W. HILL, deputy medical officer of health for West Ham, is described as "a book that strips the veil from our social life." The implied assumption is that a veil never performs any useful purpose. It may, on the other hand, at least be contended that nudism often indicates a return to savagery rather than an advance in civilization. Though the appropriateness of the metaphor of unveiling to the author's method may be questioned, it would not be a misuse of language to call his method stark, in several senses of that adjective. There is a foreword by Sir Arbuthnot Lane, and Dr. Hill himself is responsible for a rhetorical "prologue" and "epilogue." What comes in between is of more value than these, but they serve to indicate the angle from which the author's health survey and proposals are presented.

> "The whole structure of society creaks. Must we lie amongst its shattered ruins? . . . I am bitterly opposed to any authority that prolongs poverty and deprives men, women, and children of the happiness which is their natural heritage. I am for the State. I am the enemy of all who would dethrone the State."

From beginning to end we find no suggestion of a thought that individuals have any responsibility for, or can contribute towards, their own health or their own happiness. The general thesis of the book, in fact, is that the whole nation is to be regimented and to be drilled into health. Those who sympathize with this point of view will find the book agreeable and satisfying, for it is singularly comprehensive in its survey of public health matters—administrative, sanitary, clinical, and eugenic. It is interesting and informative in most of its sections; it is broadly correct in its recognition of existing imperfections; and in its suggestions it is absolutely consistent in avoiding what the author describes as the "futility" of any "middle course." But, like almost all pronouncements of an extremist character, it contains some not unimportant errors of fact; it makes in an unqualified form a large number of statements which are highly controversial; it bears evidence of definite ignorance of some sections of the field brought under review; and it disregards facts and considerations which are unfavourable to the point of view which it wishes to encourage. The author, in disparagement of general practice, thinks it worth while to enunciate the truism that "no one, however competent, can be expected to possess a thorough grasp of all branches of medical knowledge." This applies even to medical officers of health, as they will be modest and willing enough to admit.

It is clear that Dr. Hill is largely uninformed about the actualities of national health insurance practice, and that

[2] *The Health of England*. By T. W. Hill, M.D., D.P.H. London: J. Cape, Ltd. 1933. (Pp. 301; 15 figures. 6s. net.)

he has a very imperfect conception of the work of private practitioners in general. He assumes, for example, "the stultifying influence of panel practice," and that "the idea of the family doctor is exploded." He repeats as universally true the inaccurate statement that "the home is not the proper place for a confinement," and that "the average practitioner is often too busy or too tired to deal adequately with maternity cases," as if this did not apply in a similar occasional way to all his work and to that of all other hard-working persons. But, according to Dr. Hill, even in a maternity home or hospital a general practitioner ought never to attend a confinement. Nor ought he ever to have anything to do with children or with motherhood in health or disease.

"I would propose that in the process of reorganization maternity and child welfare officers should be given complete charge over the health of all mothers and children under 5 years of age, that school medical officers be responsible for the health of all school children, and that panel doctors be enrolled as salaried officers of the local authority responsible to the Public Health Committee and having charge of all persons over school age."

Such is the bleak prospect for the doctors. What of the people? "Under the new system it will be the doctor and not the patient who will decide the course of action." Each person would be compelled to have "one complete health examination every year." "One of the functions [*sic*] of the health examination would be to take a specimen of blood from each subject to determine amongst other things the Wassermann reaction." The periodic health examination would enable the doctor to discover "defects perhaps unknown to the patient, and to refer any patients with a weak heredity to a eugenic clinic, where a skilled eugenist would work out the family history for three generations past and report his findings to the authority set up to examine and decide on sterilization." Those liable to sterilization would include consumptives, psychotics, mental defectives, congenital deaf-mutes, epileptics, and victims of certain familial diseases. It is to be feared that the doctor would everywhere be dreaded at least as much as the tax collector, and this by the whole population and not merely by a section of it.

It is a comforting fact that neither the English people nor the medical profession will consent to be organized and ordered in any such fashion. Dr. Hill seems to have little knowledge of, and certainly has no regard for, what the great body of the profession, or even of his own colleagues in the public health service, are thinking. He mentions the British Medical Association only once, and then goes out of his way to give a wrong impression of its proposals. He has no thought of associating the private practitioner with the health services of the country, but looks upon him as working in a rather futile way in an entirely separate field. No progress can be made on these lines.

IMMUNITY REACTIONS

The great volume of literature on immunity appearing in a diversity of journals, ranging from those devoted to pathology to those dealing with physical chemistry, makes it extremely difficult to keep up with the subject, and still more difficult to obtain a consistent picture of the whole. There is therefore a constant need for a book which gives an account of the present knowledge with a uniform outlook throughout. Professor H. SCHMIDT's book Advances in Serology[3] supplies this requirement. It deals only with *in vitro* reactions, as other aspects of immunity will be treated in a later volume of the same series. The author has succeeded in compressing into a small volume a very complete review of the known facts, with a very thorough account of the literature, including that of England and the United States of America, even up to 1932. He begins with a discussion of the mechanism of the agglutinin reaction. The standpoint adopted is that advocated by Eagle and others, that the antigen is coated with a layer of denatured globulin derived from the antiserum, and that agglutination in salt solutions of appropriate strength is the result of this change. The other immunity reactions, including the Wassermann reaction, are dealt with from the same standpoint. The later pages include chapters on blood groups, including the subgroups, and on the nature of complement, which are clear and thorough. In spite of great compression the text is very lucid and readable. The figures and tables, which are taken from original papers, are well adapted to illustrate the text.

Two subjects seem of sufficient theoretical and practical interest to merit fuller treatment. One is the relation of the specificity of antigens to chemical structure as illustrated by the specific polysaccharides and the synthetic antigens studied by Landsteiner and his followers. The other is the time aspect of the zone phenomenon which is applied in the Ramon titration and the optimum proportions of Dean and Webb.

[3] *Fortschritte der Serologie. Wissenschaftliche Forschungsberichte Naturwissenschaftliche Reihe.* Band XXX. Von Professor Dr. H. Schmidt. Dresden: T. Steinkopff. 1933. (Pp. 191; Geh. RM.12; Geb. RM.13.20.)

DIET IN DISEASE

Dr. E. FÖLDES, formerly assistant professor of medicine in the University of Budapest, in his book *A New Approach to Dietetic Therapy*,[4] endeavours to show that disturbances of water and mineral metabolism are important pathogenic factors in many diseases. The first part is devoted to the general physiology and pathology of water and mineral metabolism. The second part deals with the special pathology of retention and mobilization of water and minerals in a large variety of diseases—epilepsy, eclampsia, bronchial asthma, allergic diseases, gout, hypertension, etc. The third part treats of therapy and "anti-retentional" diets—that is, diets that will promote elimination of water and minerals.

The author does not discuss the genesis of oedema, and only considers certain phases of water and mineral metabolism. The account given of these fundamental problems appears to us inadequate, since the factors regulating water and mineral exchanges in the body have in recent years been the subject of extensive research. The section dealing with therapeutic results is the most extensive, and a full account is given of the successes obtained by the author in dietetic therapy. He records improvement in each of nineteen cases of hypertension so treated, and the charts show remarkably extensive and uniform reductions in systolic blood pressure. The general principles on which the diet is planned are indicated by the following approximate figures. The total calorie value is low (1,600 to 2,100 C a day), with a low carbohydrate content (about 200 grams a day) and a low fat content (about 50 grams a day): the protein allowance is fairly liberal (120 grams a day). The salt intake is not specially reduced, but the total fluid intake is limited to one litre a day. A good vitamin content is ensured by inclusion of milk, fruit juice, and vegetables. This diet differs in certain important respects from the Gerson diet, which also aims at dehydration of the tissues and alteration of the mineral metabolism. The author's views on the scope and importance of his method of treatment are best indicated by the following quotation (p. 234):

"Finally, it has formerly been pointed out that the only reasonable hope for preserving the youthful functions of the

[4] *A New Approach to Dietetic Therapy.* By E. Földes, M.D. Boston: The Gorham Press. 1933. (Pp. xii + 434; 5 dols. net.)

organism, and for retarding the process of ageing, seems also to lie in the method consisting of elimination and prevention of retentions, so that the significance of this measure almost assumes Utopian proportions."

GROUNDWORK OF SURGERY

Mr. R. L. Spittel has written a synopsis, entitled *Essentials of Surgery*,[5] which he dedicates to the students of the Ceylon Medical College. It does not include abdominal and pelvic surgery, which are promised in another volume. The book differs from some other synopses in that it is in no sense a "cram-book," but rather an explanatory review stressing the pathological and physiological basis upon which surgical practice is built, and showing how the superstructure has been put together. This, we imagine, has been the service which the author has desired to give to the medical student, and he is definitely successful in his attempt. Not that the book is unpractical: it deals with the details of diagnosis and treatment in a clear and succinct manner, and there are a number of useful and original anatomical and clinical illustrations. Two-thirds of this volume are occupied by general surgery, beginning with the infections. It is not strictly logical to emphasize the reparative character of inflammation, and to speak later of its "treatment," or to suggest that it is the "cause" of tissue destruction (pp. 29 and 51). In the final third consideration is begun of the regional affections, of brain and head, neck, and thorax. The author has shown commendable discrimination in confining his exposition to essentials, and the book appeals to understanding rather than to mere memory—a difficult thing to achieve in such a work. This is a good student manual, and others also will find it readable and informative.

Notes on Books

The aerial transmission of disease, long ago surmised by Varro and strenuously debated in modern times in connexion with small-pox hospitals, has lately found a new channel and acquired a fresh significance. Through the facilities for travel by air the time required for the transport of infection from place to place has been so curtailed that persons incubating diseases contracted even beyond the confines of Europe may be landed from aircraft in this country before recognizable symptoms have developed. Compared with the airways, sea journeys are slow. On the steamer route from India to this country a passenger infected with small-pox before embarking is bound to sicken on the voyage. Thus suitable precautions can be carried out on board, and, with the aid of wireless messages ahead, at the port of destination also. But if the transit is by air, the prospective patient may reach a British airport unsuspicious and unsuspected, develop small-pox a week later, and be notified later still, having in the meantime passed on his disease and possibly started a general outbreak. Dr. Arthur Massey's concise review of the problems arising and of current opinion regarding them[6] is therefore of timely interest. He states the reasons why air-borne yellow fever, despite the episode of the barque *Hecla*, is not a menace to Britain, but refers to the contingent risk of its transference by aircraft from West Africa, where it is endemic, to East Africa, which has hitherto been immune, although a haunt of the peccant mosquito. The dangers from cholera, plague, malaria, and small-pox are likewise considered. As regards typhus and relapsing fever he notes that the duration of the land and sea journey from their endemic centres in Europe is already shorter than their incubation periods, so that air transport, so far as time is concerned, does not materially aggravate the menace from these sources. In any event the persons most prone to be infected with typhus and relapsing fever are not such as usually indulge in air travel under present conditions. Dr. Massey's book comprises an informative section on the sanitary control of aircraft, and concludes with a summary in convenient form of the measures recommended against aerial transmission of the major infections.

The Liver Diet Cookery Book,[7] by Dorothy Sewart, is a small volume of sixty pages, and on the title-page the author describes herself as a sufferer from anaemia. She explains in the preface that when put on a liver diet she found it very trying, and worked out for herself daily menus that would provide a reasonably palatable and varied regimen. In this book she has put her practical experience at the disposal of others. It contains some forty recipes for the preparation of uncooked or partly cooked liver, and also menus for fourteen days. The difficulty of making a liver diet palatable is notorious, and practitioners and patients alike will find this volume a very useful aid.

Dr. A. Hesnard's Treatise of Sexology,[8] which forms the latest volume of the series entitled Bibliothèque Scientifique, is divided into three parts, devoted respectively to the biological, psychological, and pathological aspects of the subject. In the biological part (which is preceded by an interesting historical introduction in which Havelock Ellis, Freud, and Marañon are rightly credited with being the founders of sexology) the author considers the sexual function throughout the animal kingdom, and then deals with the latest discoveries in endocrinology and neurology relating to the sexual appetite and the psycho-physiology of the sexual impulse. The second part contains a study of the psycho-sexual évolution of the individual from birth till old age, the chief characteristics of masculine, feminine, and intersexual behaviour, sexual feelings, such as modesty in savage and civilized races, love and jealousy, and social psychopathology and its theoretical applications to morality and hygiene. The third part consists of an elaborate study of impotence in men and frigidity in women, auto-erotism, and the various forms of sexual perversion, with their physical and psychological treatment. The author is a critical disciple of Freud, whose work he was the first to introduce into France.

[5] *Essentials of Surgery*. By R. L. Spittel, F.R.C.S. London: Butterworth and Co., Ltd. 1932. (Pp. 585 + xi; 107 figures. 13s. 6d. net.)

[6] *Epidemiology in Relation to Air Travel*. By Arthur Massey, M.D., D.P.H. London: H. K. Lewis and Co., Ltd. 1933. (Pp. viii + 60; 60 maps. 7s. 6d. net.)

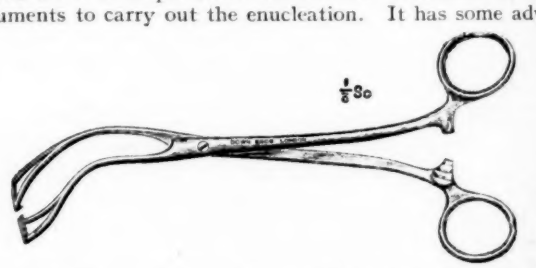
[7] *The Liver Diet Cookery Book*. By Dorothy Sewart. Foreword by Vincent Coates, *M.C.*, M.A., M.D. Bristol: J. Wright and Sons, Ltd. 1933. (Pp. 62. 1s. 6d. net.)

[8] *Traité de Sexologie normale et pathologique*. Par Dr. A. Hesnard. Préface du Dr. Toulouse. Paris: Payot. 1933. (Pp. 718; 72 figures. 75 fr.)

Preparations and Appliances

TONSIL-HOLDING FORCEPS

Dr. T. H. R. McKiernan (Falmouth) writes: This forceps illustrated herewith is nothing more than a modification of Duval's peritoneum pattern. The blades are curved to almost a right angle with the handle, so that when the tonsil is grasped there is ample room for the use of scissors or other instruments to carry out the enucleation. It has some advan-



tages inasmuch as the tonsil is held firmly and may be drawn well out of the tonsillar fossa. No damage is inflicted on the tonsil, and the view of the operation field is not restricted. It is extremely light, and in practice it works well. It would be advisable to have a smaller size for use with children. Messrs. Down Bros. have kindly carried out my suggestions in making this instrument.

REPORT ON THE USE OF CHLOROFORM CAPSULES DURING LABOUR

BY

ARTHUR REES, L.R.C.P. AND S.ED.,
L.R.F.P.S.GLAS., M.M.S.A.LOND.

Within the past few months an investigation as to the value of chloroform capsules during labour has been carried out under my supervision at Queen Mary's Maternity Home, Hampstead. Seven qualified midwives have taken part in this investigation, and although a certain number of cases, especially among the earlier ones, have been carried out under my direct supervision, the vast majority have been under the sole responsibility of the midwife conducting the case. Some of us have had previous experience in the use of these capsules, but this investigation has been approached with an open mind, quite unbiased by any preconceived opinion. The conclusions arrived at are based entirely on this series of cases.

The series comprises one hundred cases. They were not in any way selected cases. Each case as it came to the home was taken, only those which required a general anaesthetic being excluded. The ages of the patients varied from 19 to 41 years, and consisted of thirty-nine parous for the first time and sixty-one whose parity varied from the second to the sixth time. In all cases the presentation was either primarily a vertex or one turned to a vertex during pre-natal care.

That the cases were not selected is evidenced by the fact that the series contains several showing obstetrical abnormalities. Among these was one generally contracted pelvis in which spontaneous delivery was effected. Six showed a moderately raised blood pressure with or without albuminuria. One ante-partum haemorrhage due to marginal placenta praevia is also included, while another is a case of twins.

The average number of capsules used was 3.41, which figure includes those used to facilitate the insertion of superficial sutures. The average interval between each capsule works out at 10.16 minutes.

APPARENT EFFECT OF CAPSULES

Following the questions asked on the form supplied by the National Birthday Trust Fund, the observations on the apparent effect of the capsules may be tabulated as follows:

Apparent effect on uterine contractions:	
None	84
Decrease	16
Increase	0
Apparent effect on pain felt:	
None	5
Some	75
Great	20
Apparent effect on voluntary effort:	
None	60
More forcible	3
Less forcible	37
Patient's opinion:	
No use	8
Some use	42
Great use	50

A better estimate of the value of these figures may perhaps be obtained from a less detailed analysis. Thus, in 84 per cent. of cases there was no apparent effect on the uterine contractions, whereas only 16 per cent. showed a decrease. In 95 per cent. of cases there was apparent lessening of pain felt, while 5 per cent. showed no difference. Voluntary effort was apparently unaffected in 60 per cent. and diminished in 37 per cent., while in 3 per cent. of cases there was a definite increase.

The patients themselves expressed opinions in favour of the capsules in 92 per cent. of cases, only 8 per cent. considering them of no use. In connexion with this latter it is interesting to note the various opinions expressed by primiparous patients and multiparous patients. These were as follows:

Primiparae, 39 Cases			*Multiparae, 61 Cases*		
No use	4 (10.25%)		No use	4 (6.55%)	
Some use	18 (46.15%)	89.7%	Some use	24 (39.34%)	93.4%
Great use	17 (43.58%)		Great use	33 (54.09%)	

It is seen from these tables that those in childbirth for the first time appreciated the use of the capsules to almost the same extent as those who had experienced childbirth on at least one previous occasion—that is, 89.7 per cent., as against 93.4 per cent. I must confess to some surprise at this result, as I should have expected the balance of appreciation to be much more on the side of the multipara, and in fact my own observations led me to think such to be the case.

Coming now to the "ill effects." In no case was there any ill effect to the child. Nine of the mothers are described as being very excited under the influence of chloroform, one being said to have become uncontrollable. In six cases delay was noted in the second stage, while there was loss above normal in eight cases during the third stage. It is probable that the use of chloroform contributed to the last two ill effects, though it is difficult to assess to what extent. The haemorrhage in each case responded to uterine stimulants, and could not be classed as serious. In no case did the delay adversely affect the child.

CONCLUSIONS

The results obtained in this investigation, together with personal observation of cases in the series, lead to certain definite conclusions.

In the first place, it would seem to be established that the use of chloroform capsules by midwives in the second stage of labour is both safe and, in the majority of cases, beneficial to the patient—provided, of course, that due care is exercised.

Considering the method of administration several questions arise. One is, When should the first capsule be used? Should it be at the onset of the second stage or some time later? Experience in this series showed that the best results were obtained where the first capsule was given when definite progress in the second stage of labour became evident. Indeed, it would seem unnecessary to start chloroform early if sedatives have been given during the first stage. I would here put forward a very strong plea for the more universal and free use of sedatives during the first stage. Personally, I am convinced that relief of mental anxiety and pain during a stage at which the mother can do nothing useful to help herself is of the utmost importance to success in the later stages.

A further question of vital practical import also arises. Can these capsules be safely used by a midwife conducting a case alone? If not, what assistance is essential? To the first of these questions the answer is, I think, in the negative. The midwife's attention is, and ought to be, concentrated on the proper conduct of the second stage, and cannot, therefore, be divided by any other issue. The answer to the second question is, in my opinion, "Another trained person," and herein lies a practical difficulty in rural districts. Chloroform is certainly a potent drug, and I for one would not consent to allowing any but one trained in its use to administer it, even in the form of capsules such as those used in this investigation. I am convinced that these capsules can be a very real danger to mother and child if improperly used. In institutions such as Queen Mary's Maternity Home and in district work in large towns no great difficulty should arise to prevent their use. But, taking the country as a whole, some organization different from that already in existence seems to me essential if the use of chloroform capsules is to be universally adopted.

I wish to express to the matron and staff of Queen Mary's Maternity Home my sincere thanks for their loyal and wholehearted co-operation in this investigation, without which it could not have been carried through. Also, I wish to thank the National Birthday Trust Fund for supplying the capsules.

British Medical Journal

SATURDAY, AUGUST 5th, 1933

THE DUBLIN MEETING

It was, we believe, Mrs. Malaprop who said "No caparisons, miss, if you please," and to compare one Annual Meeting with another is like comparing two sunsets. Each meeting is unique. Each has its own distinctive colour. And although green is the colour traditionally associated with Ireland, we should like to choose that other colour in the Free State flag—orange—as symbolizing the gaiety and the warm glow of hospitality extended to their guests by the new President, Professor T. G. Moorhead, and the members of the Leinster Branch of the British Medical Association. Many present at this year's meeting were paying their first visit to Dublin's fair city, and indeed to Ireland, and on every hand one heard expressions of gratitude at the way, not only the medical profession, but the citizens themselves, from the President of the Executive Council and the Lord Mayor down to the tram-conductors, welcomed their visitors from across the sea.

The registered attendance of 1,269 members exceeded all expectation. As the dramatic critic of one of the Irish newspapers, describing a performance at the Abbey Theatre, put it—with the Irishman's well-known talent for verbal condensation—"the attendance was so numerous that there was standing room only." There was so much to do, so many things to see, such a plethora of garden parties, receptions, and excursions, that a visitor intent upon missing nothing would have had to set out at the dawn of one day and return on the dawn of the following. Among the many who made the machine of organization run so smoothly that one was not aware of its existence we should like to express thanks to the indefatigable lay secretaries of the Reception Rooms Committee and of the Local Entertainments and Excursions Committee—Mr. C. E. Riley and Mr. Denis Barrett—who gave such yeoman service to Professor J. W. Bigger and Dr. J. P. Shanley. Nor must we forget the ladies, who, under the gracious presidency of Mrs. Moorhead, gave themselves up so whole-heartedly to the entertainment and comfort of their guests. Apart from the social functions, the importance of which in promoting friendly relations between the peoples of the two islands cannot be overestimated, there were the sterner activities of the Representative Body and the Scientific Sections. Those who may still be unaware of the range and importance of the B.M.A.'s work in the medico-political and sociological spheres will find a great deal to interest them in the full accounts of the Annual Representative Meeting in the *Supplements* of July 29th and of this week. The widening of the Hospital Policy and its growing acceptance by the profession, and the decision to set up consultant lists for the provinces, deserve special mention. We particularly welcome the interest shown in the interim report of the Committee on Medical Education. It must have given a peculiar satisfaction to the Dublin doctors to find the Scientific Sections, now 66 years old and born in Dublin, flourishing so lustily. It is thought that if a strict census of attendance had been taken it would be found that Dublin had broken the record. The opening papers read before the sixteen Sections maintained the usual high level of previous years, and the discussions that followed were particularly fruitful. Many of the subjects chosen are of great practical importance to the general practitioner, and those who were unable to attend the meetings will have the opportunity of reading, in subsequent issues of the *Journal*, papers—to select a few at random—on puerperal sepsis, the gynaecological aspects of endocrinology, the deficiency anaemias of childhood, vitamins in paediatric practice, the treatment of acute otitis media. A subject which attracted a good deal of attention in the Irish Press was the discussion on the housing question in the Section of Public Health, which was attended by Mr. Seán O'Kelly, Free State Minister for Local Government and Health. No more appropriate place could have been chosen for this discussion, as the slums of Dublin are, as one Dublin doctor said, appalling. We cannot leave the scientific side of the meeting without mention of the Museum, with its skeleton of the acromegalic giant, Cornelius Magrath; of the Historical Exhibition, arranged by Dr. T. P. C. Kirkpatrick; and of the exhibition of hobbies arranged by Dr. S. F. Bourke. As Mr. William Doolin said in his prologue to the catalogue of the last-mentioned exhibition: "The doctor, even as other men, cannot spend all his days in pursuit of Socratic virtue."

Carrying away so many happy memories of the island of saints and scholars, with old friendships consolidated and new ones formed, the visitor to the Dublin meeting must have been struck by the thought that conferences of great professional organizations like the B.M.A. can play a significant part in the solution of ancient animosities and modern disagreements between neighbouring countries. The meeting of Protestant and Catholic and of the heads of opposed political parties under the beneficent and healing roof of medical hospitality offers, we venture to suggest, a prophylactic that might well be applied in "State Medicine." Finally, in the name of the Association we extend a most cordial invitation to our Irish brothers and their wives to come over to Bournemouth next year, so that English doctors may have the privilege of returning their abundant hospitality.

RADIOTHERAPY IN CANCER OF THE CERVIX

By many authorities radiotherapy is now considered as the method of choice for treating carcinoma of the cervix uteri, even when the cases are considered "operable." Before its advent the condition had been treated by what a late eminent surgeon described as "mutilating and but too frequently ineffectual surgical operations." It was then small wonder that patients should delay as long as possible before seeking advice—often, indeed, until the disease had reached inoperable proportions. To some extent this state of mind still prevails, as the type of case admitted to the L.C.C. hospitals bears witness,[1] though there are signs of improvement even here. "At the Marie Curie Hospital (London) the average duration of symptoms, prior to the patients' coming to hospital, was about ten months. Further investigations showed that of these patients about a quarter had been receiving some sort of medical treatment for symptoms for seven months before a proper gynaecological examination was made, while a twelve or eighteen months' interval was recorded in some of the cases. Undoubtedly part of the delay is attributable to absence of pain in the early stages, and to aversion to the necessary examination, while dread of knowing the truth must also play a very large part."[2]

The average operative mortality from Wertheim's operation was given in his own clinic as 13.8 per cent. In the hands of one of our most expert operators the mortality in his early cases was given as 20 per cent. and in 1932 was 9 per cent., the average being 15.3 per cent. The result is obviously a brilliant improvement; but it must be borne in mind that this advance has been the life-work of an exceptionally skilful man. Younger operators commencing the technique can hardly hope to achieve at once the results of long experience and wonderful skill. It must, in addition, be borne in mind that Wertheim's operation involves not only the complete removal of the uterus and adnexa, but also that of the greater part of the vagina. We believe that in some Continental clinics there has been a reversion to a less extensive operative procedure, but the ultimate results are yet to be seen. With properly conducted radium treatment the operative mortality is less than 2 per cent., and the fatal issue is generally the result of extensive preoperative septic infection. The amount of mutilation is reduced to a minimum, and the patient, in the great majority of cases, is soon able to get about, and, when the general health is restored, to carry on her usual occupation. Another feature of radium treatment is the remarkable relief of symptoms: and even patients who are regarded as hopelessly inoperable should have the chance of radiotherapy, as is done in the L.C.C. hospitals. In such cases the relief of the most distressing symptoms often appears little short of miraculous. In early cases the prognosis for cases treated by radiotherapy is good; in advanced cases the prospect of material relief is almost certain.

In the early days of radium therapy for carcinoma of the cervix there were undoubtedly many cases of recto-vaginal or vesico-vaginal fistula as the result of treatment: at the present time, with improved methods of dosage and screenage, these unfortunate sequels may generally be regarded as an avoidable risk. There are many methods by which carcinoma of the cervix is treated by radium, of which the best known are the Paris technique and the Stockholm technique. Though there are important differences in the actual dose of radiation administered and in the spacing of the time over which the treatment is spread, the two methods resemble one another, inasmuch as both are "intracavitary" methods. Radium in specially designed containers is inserted in the cervical canal and uterine cavity, while additional applicators are placed in the vagina in order to deal with possible paths of dissemination of the growth in the pelvis. At first sight the impression is that we are dealing with an essentially simple procedure which demands no special surgical or gynaecological qualifications. In Paris and Stockholm their particular forms of technique have been in use for 20 and 15 years respectively, with the result that the requisite dosage can be prescribed within safe yet adequate limits. At the present time both Paris and Stockholm are using supplementary x rays as a routine procedure: this, in addition to being an extra therapeutic measure, will in some degree compensate for any accidental error in the spacing of the radium containers. The latter is of fundamental importance, since the *effective* range of a radium container is limited, in spite of the highly penetrating power of some of the γ rays emitted; it is indeed a physical problem of no small complexity. It is necessary to realize that the surgery of access is only a means to an end: that end is the efficient distribution of the radiations from the radio-active material in the containers.

In some of the smaller clinics in this country where radium is used there is a tendency for the surgeon or gynaecologist to employ radium without reference to a specialist radium officer whose whole time is devoted to his subject. Co-operation is essential, and it is undoubtedly this co-operation which has been fundamental in securing the remarkable results which have been obtained on the Continent and in some hospitals in our own country. It would indeed be an excellent thing if surgeons proposing to devote their time to radium therapy should qualify by obtaining the diploma in radiology. X-ray therapy is now so intimately associated with radium therapy that it is hardly possible to carry out, on a scientific basis, treatment by radium without a knowledge of the principles involved in x-ray treatment. This undoubtedly involves some study of physics as distinct from mere empirical radium therapy; but in the interests of efficiency it is certainly to be desired that surgeons contemplating radium treatment should at least attain

[1] Radiotherapy in L.C.C. Hospitals, *British Medical Journal*, June 10th, 1933, p. 1019.
[2] Colwell: *Notes on Radium Therapy*. London: Lewis. 1931.

the very moderate standard in that subject which is required in order to obtain a diploma in radiology. The best results here have been obtained at institutions which either have a special physical department, in connexion with their own radiotherapeutic department, or which work in collaboration with institutions where such expert technical advice is obtainable. When we realize the conditions at a great Continental clinic such as Stockholm or Paris, it is obvious that a few weeks' study of the subject, by taking a "course" in radium surgery, is wholly inadequate preparation for what should essentially be a life-work. At one great Continental centre it is admittedly the fact that a change in personnel led to a marked temporary deterioration in the results obtained. Co-ordination, co-operation, and permanency of specialist staff are certainly not least among the essential conditions for success. Radiotherapy without physics is as impossible as surgery without anatomy.

THE NATION'S FOOD SUPPLIES

The Food Investigation Board's report for 1932, issued by the Department of Scientific and Industrial Research,[1] reviews the work carried out with the object of improving quality and preventing wastage in our foodstuffs by better methods of handling and storage. Noteworthy progress has been made in the commercial gas-storage of home-grown apples (that is, by the control of carbon dioxide and oxygen in the atmosphere of the store by regulated ventilation). As regards the prolonged cold storage of home-grown apples, it is shown that a variation in the storage temperature of only 1 to 1½° F. may have a pronounced effect not only on wastage from fungal rotting in the days following removal from the store, but also in losses from internal breakdown. Experiments were made upon the effects of substances given off in minute quantities as vapour during the ripening of fruit. Following an American observation that ripe apples placed among potatoes retarded sprouting, it has been discovered that the growth of young pea seedlings and other seeds is delayed or distorted by exposing them to air which has passed over ripe apples. Evidence points to the active substance being either ethylene or a body of a similar nature. Apples and other fruit, after being gathered, breathe out carbon dioxide, and one secret of a long storage life is to keep their respiratory activity low. In the storage life of all fruit there comes a time when a change takes place; the respiratory activity rises suddenly for a short time, falling again later. Development of the active substance in apple vapour coincides with the climacteric change, and is not present before it has taken place. Apple vapour from fruit which has passed through the respiratory change immediately starts this change in other fruit, such as tomatoes and bananas. Study of the effects of "apple air" on apples and other fruit and the influence of the climacteric changes may lead to a clearer understanding of many of the diseases in fruit which constitute serious practical problems in its storage and handling.

[1] Report of the Food Investigation Board for the Year 1932. H.M. Stationery Office. (5s. net.)

Important results are noted in connexion with the storage of chilled beef. In ordinary air chilled beef can be kept in store for about one month, after which it rapidly deteriorates. This period permits of marketing of chilled beef from the Argentine in this country, but is too short for Australian and New Zealand beef. It has been found, however, that comparatively low concentrations of carbon dioxide prevent the growth of the moulds and bacteria commonly found on chilled beef. Attention is now being directed to the means by which these successful laboratory experiments can be applied in practice: in other words, how a given concentration of CO_2 can be economically maintained in a large refrigerated space such as a ship's hold. As the result of other work on the storage of fish and meat, light has been thrown on the relation between temperature and the rate at which tissues deteriorate in the frozen state. Broadly speaking, the rate of deterioration is greatest at $-2°$ to $-3°$ C.; it decreases almost to zero at $-20°$ to $-25°$ C. But the degree of bacterial infection to which meat is subjected during handling is as important as the control of temperature in securing a reasonably long life in store. A bacteriological study of the factors which contribute to the spoilage of meat in small refrigerators has been begun. From this point of view, the problem of the small refrigerator differs from that of the large store, because carcasses are stored uncut in the latter, and, being uncut, are covered by a layer of fat and connective tissue upon which little or no bacterial growth will take place under normal treatment. While carcasses that have been handled carefully can be stored for periods up to eight weeks at 0° C., in small joints the lean is exposed, and the moist surfaces provide excellent soil for the growth of those bacteria which, in time, produce a visible slime and a characteristic odour. Lastly, we may note that an endeavour is being made to determine the extent and the causes of the fluctuations in the vitamin A potency (from 30 up to as much as 7,600 units) of the oil from the halibut's liver. An important by-product of the general investigation of the oils and fats of fish is the discovery in fish's liver of the active principle now much used in the treatment of pernicious anaemia. Means have been devised for preparing a palatable and highly active extract which has yielded such promising results in clinical tests, carried out by Professor Stanley Davidson of Aberdeen, that tentative commercial production has been arranged with a view to extended clinical trial.

THE PATHOLOGICAL MUSEUM AT DUBLIN

The Pathological Museum organized in connexion with the Dublin Annual Meeting last week attracted a large number of visitors, all of whom must have found something of special interest, for the museum contained exhibits of pathological conditions in great variety, and also a unique series of dissections and curiosities. It was located in the School of Anatomy, Trinity College, and the committee, of which Professor T. T. O'Farrell was chairman, and Drs. John Lait and W. R. O'Farrell were secretaries, had taken much trouble in making it not only representative of the work of the Sections, but also a storehouse of objects of general interest. On first entering the room the visitor was struck by the

very convenient plan adopted for the display of the pathological specimens, these being arranged on shelves covered with green cloth, at such a height that it was not necessary either to stoop or to stand tiptoe in order to study them. Descriptions of each specimen were pinned up alongside. Pathologists who have had previous experience of arranging and displaying specimens probably took a peep, when no one was looking, to find how it had all been fixed up ; and if so there is no doubt they learnt something useful. It is to be hoped, also, that those engaged in this form of espionage made a note of the way in which the microscopes were arranged together on the central table, and of the general lay-out of the *x*-ray room. Among the exhibits which seemed to receive most attention were the series of slides and illustrations of the human ovum obtained in curettings (aged 15 days), the collection of brain lesions from Richmond Hospital Museum, and the specimens illustrating diseases of the eye. Exhibits of more general interest, which were usually surrounded by a knot of spectators, were the monsters and abnormal skeletons, including the celebrated giant Cornelius Magrath (1736-60), whose great stature was attributed by tradition to the result of experimentation by Bishop Berkeley, who had befriended him when a boy. The committee responsible for the museum, and especially Professor A. F. Dixon and Dr. John Lait, deserve the congratulations of the Association for the very interesting and instructive series of exhibits, and the excellent way in which they were displayed. The preface to the catalogue acknowledges indebtedness, in obtaining material for this all-Ireland museum, to Queen's University, Belfast ; to the Royal College of Surgeons in Ireland ; to the School of Pathology, and the Surgical Museum of Trinity College ; to University College, Dublin, and University College, Cork ; and to the Richmond, Rotunda, and St. Vincent's Hospitals, Dublin.

MEDICAL SERVICES COMMITTEE REPORT

Members of the medical branches of the Defence Services will be interested in the summary (published at p. 269) of the report of the Warren Fisher Committee, which was presented to Parliament on the evening of Tuesday, August 1st. This report has only come to hand at the moment of going to press, and it has not, therefore, been possible to examine all its proposals in detail. It will be noted in our *Supplement* this week (p. 81) that when the report of the Naval and Military Committee of the British Medical Association was under consideration by the Representative Body in Dublin, on Monday, July 24th, the following resolution was passed:

> That it be an instruction to the Council to consider the report of the Warren Fisher Committee, when published, and the action of the Government arising thereout, and that if such action is considered to be unsatisfactory, the Council be given full authority to advise members of the profession seriously to consider the disadvantages to which they are liable if they accept service as officers in the Royal Naval Medical Service, the Royal Army Medical Corps, the Royal Air Force Medical Service, the Royal Naval Volunteer Medical Reserve, the Territorial Army Medical Service, or the Auxiliary Air Force Medical Service.

It will now be necessary for the Naval and Military Committee of the Association to examine, at the earliest possible moment, this report in all its aspects, from the point of view of the serving officer as well as from that of the potential recruit. The Council will, in due course, receive and consider the report of this committee on this subject, and will then, in the light of its mandate from the Representative Body, determine what action is necessary to further the interests of those affected by the proposals contained in the report of the Warren Fisher Committee.

THE ROSS INSTITUTE AND THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

A printed memorandum on the proposed amalgamation of the Ross Institute and Hospital for Tropical Diseases with the London School of Hygiene and Tropical Medicine has been issued this week by Sir Charles McLeod, chairman of the Institute. On the death of Sir Ronald Ross he considered it his duty to make a special inquiry into the organization of the Institute, so as to ensure that it would be a worthy memorial to a great man, but before that could be completed there came a proposal for amalgamation with the London School of Hygiene and Tropical Medicine. The question was first raised by the Goldsmiths' Company, which, before giving a grant to the Institute, asked for an assurance from the honorary treasurer, Lord Queenborough, that there was no overlapping of the activities of the School and the Institute. At an informal meeting between Sir Austen Chamberlain, the late Sir Walter Fletcher, members of the Board of Management of the School, and Lord Queenborough and Sir Charles McLeod, representing the Institute, it became clear that overlapping occurred widely in the field from which support for both bodies was obtained, and that possibly there was overlapping in other activities. Since that date there have been a number of discussions. Early in their course a large measure of agreement was found, both on fundamentals and on details, and an assurance given that in the event of amalgamation the School would accord the work of the Institute its fullest support, both for its own sake and as a memorial to Sir Ronald Ross.

> " As a result of these discussions, the Board of Management of the School and the Executive Committee of the Ross Institute have decided on the desirability of the amalgamation ; and I am issuing this memorandum to explain to members of the Institute the reasons which have induced me to come to the conclusion that amalgamation should take place, how it will affect the objects for which the Ross Institute was founded, and something of the School and its associated hospital with which amalgamation is proposed."

Sir Charles McLeod recalls particularly that in the reorganization which led to the creation in London of a great School of Hygiene that would be of value not only to Britain and the British Empire, but to every part of the temperate and tropical zones, the long association of the London School of Tropical Medicine and the Seamen's Hospital Society was preserved by a special agreement, which provided that research and clinical instruction should be carried on in their Hospital for Tropical Diseases in Endsleigh Gardens, a few minutes' walk from the School. Turning to the origin

of the Ross Institute, he describes how, in addition to being a memorial to Sir Ronald Ross, the fundamental idea was again work for the benefit of mankind. Although the histories of the London School of Hygiene and Tropical Medicine and the Ross Institute have been different, and although each has been developed on somewhat different lines, their fundamental objects, he says, have been identical, and their spheres of work are found to be complementary. Sir Charles McLeod then explains how carefully the memory of Ronald Ross is being preserved in the process of amalgamation:

On the front of the School the name of Ronald Ross has been carved among the immortals of hygiene and tropical medicine, as a reminder for all time in the capital of the Empire of the great work which he did for the Empire and for humanity. Secondly, there will be established within the School, as a permanent memorial to Sir Ronald Ross, a department to be known by the name of the "Ross Institute of Tropical Hygiene." Thirdly, on all official correspondence of the London School of Hygiene and Tropical Medicine there will appear the words "Incorporating the Ross Institute." Fourthly, to ensure the continuation of the policy of the Institute, two members of the Institute will be placed on the Court of Governors, and one on the Board of Management of the School. Fifthly, for the administration of the department called the Ross Institute of Tropical Hygiene, a special standing committee will be created, composed of members of the Board of Management, the Dean, and additional members having relevant experience. Sixthly, to signalize the amalgamation, the Board of the Seamen's Hospital Society has decided to call a ward, in its special tropical hospital in Endsleigh Gardens, "The Ross Ward."

For the work of Sir Aldo Castellani the Board of Management of the School will provide laboratory accommodation, and he will take with him his laboratory staff; he will be appointed to the staff of the School with a title of "Director." The appointment of Director of Tropical Hygiene at the School, which has been vacant since the death of Sir Andrew Balfour, will be filled by Sir Malcolm Watson.

We take this opportunity of recording that Sir Austen Chamberlain, chairman of the Court of Governors of the London School of Hygiene and Tropical Medicine, has lately received from Mr. W. J. Courtauld a large sum of money in aid of the tropical side of the work of the School, and that, in recognition of this gift, the senate of the University of London has conferred on Professor R. T. Leiper the title of "William Julien Courtauld Professor of Helminthology."

MINERAL METABOLISM IN INFANTS

Modern knowledge of the metabolism of inorganic matter in infants has been reviewed lately by E. Rominger and H. Meyer.[1] The intensive research on vitamins has tended to obscure the great importance of this branch of paediatrics. During foetal life, and for some time afterwards, there occurs an increase in the mineral content of the body, while the water content diminishes; the increase is distributed differently among the various salts. Immediately after birth the total mineral content of the body falls if the child is breast-fed, but later it increases, usually after a few months. During foetal life the increase is principally in Ca and P, the amount of K remaining unchanged, Na and Cl even diminishing. The fall in total mineral content after birth in the breast-fed child is due to a loss in Ca and P; K increases during this time and Na is unchanged. This difference in behaviour of the various elements is probably related to the different rates of growth of the tissues, though, obviously, the amount of mineral matter fed is also an important factor in the deposition of salts. It has been clearly shown that the mineral content of bottle-fed infants is much greater than that of breast-fed, and also that the initial fall in mineral content after birth does not occur in the former. This applies to each individual constituent as well as to the whole. This excess of minerals (supermineralization) must be stored in a depot, from which mobilization can, in fact, occur if the child is put back on the breast. Supermineralization is a normal occurrence after weaning. The depots for this excess of mineral matter are the bones, the muscles, the skin (Na, Cl) and the liver (Na, Cl, K); Ca and P cannot be stored in the liver. This "storage" occurs without water retention, and so is in a sense "dry storage." Too great a demand on the dry-storage capacity will lead to oedema. Dry retention of salts is less easily manifested in the infant under 3 months than in older children; least of all is it found in premature infants. In addition to the age factor there are constitutional factors which determine what Finkelstein calls *Hydrolabilität*. The well-known sudden and considerable variations in weight of the infant is, it is suggested, causally related to constitutional differences in the power of the liver to store salt and other mineral bodies without simultaneous retention of water. In cases of acute dyspepsia and intestinal toxicosis there may occur considerable loss of minerals by the bowel, but negative balances are not common in the former. Metabolic experiments over long periods showed that the Ca, Na, and K balance is not affected by high fat-feeding. In dystrophies and the more serious atrophies, the presence of diarrhoea is of importance in the matter of mineral balance, but these conditions as such do not appear to influence this balance.

[1] *Münch. med. Woch.*, June 9th, 1933.

COMMITTEE ON FOOD LAW

The Minister of Health and the Secretary of State for Scotland have directed that the work of the committee appointed on May 14th, 1931, under the chairmanship of Sir Frederick J. Willis, to inquire into the working of the law as to the composition and description of articles of food other than milk, which was suspended in September, 1931, shall now be resumed, but that for the terms of reference set out in the minute of appointment of the committee the following terms of reference shall be substituted: "To consider whether it is desirable that the law relating to the composition and description of articles of food should be altered so as to enable definitions or standards to be prescribed, or declarations of composition to be required, for articles of food other than liquid milk; and if so to recommend what alterations of the law are required." The secretary of the committee is Mr. W. J. Peete of the Ministry of Health, to whom all communications on the subject should be addressed.

We regret to learn of the death, in Adelaide, on July 30th, of Sir Joseph Verco, M.D., F.R.C.S., consulting physician to the Adelaide Hospital, and past president of the Royal Society of South Australia.

ONE HUNDRED AND FIRST ANNUAL MEETING

of the

British Medical Association

HELD IN DUBLIN, JULY, 1933

THE SECTIONS

SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL *the opening papers communicated to the Scientific Sections of the Annual Meeting at Dublin. The reports of discussions in this and successive issues are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Wednesday, July 26th

ESSENTIAL VASCULAR HYPERTENSION

With the President, Professor HENRY F. MOORE, in the chair, Sir HUMPHRY ROLLESTON opened the discussion on essential vascular hypertension. His paper is printed in this week's *Journal* (p. 223).

Dr. JOHN GRAY (Aberdeen), discussing the subject from the pathological aspect, said that in primary hypertension necropsy almost always showed moderate hypertrophy of the left ventricle and marked hyaline or fatty thickening and narrowing of the arterioles. In spite of this there were a surprising number of healthy glomeruli and tubules. The histological changes in arterioles—other than the renal—were not constant; they were frequent in the spleen, but similar changes occurred in the absence of hypertension. He believed that in certain cases in which there was considerable renal contraction ischaemia from progressive arteriolar changes did itself produce widespread changes, and that primary hypertension frequently ended with renal insufficiency without any toxic nephritis being superadded. Differentiation between the two processes was difficult, but the nephritic kidney showed an atrophy of glomeruli and tubules out of proportion to the vascular changes, whereas the primary hypertensive kidney showed more marked arteriolar changes, which were fully sufficient to explain any associated glomerular and tubular atrophy. Exceptionally, hypertension occurred without renal changes.

Professor W. W. D. THOMSON (Belfast), speaking on the renal aspect, agreed that essential hypertension centred around the cardiovascular system: the renal symptoms were of secondary importance. He maintained that the atrophy of the parenchyma of the kidney was a patchy one, and a sufficient number of sound glomeruli and tubules were left to carry on the renal functions. He stressed the importance of the differential diagnosis from nephritis, as an error in diagnosis would subject a non-nephritic patient to much useless restriction. In essential hypertension the specific gravity of the urine, under suitable conditions, varied from 1002 to 1025; in nephritis it was fixed at a lower level. Unless a case of hyperpiesia with renal failure had been under observation before the onset of renal damage the diagnosis from chronic nephritis might be impossible.

Dr. F. C. PURSER (Dublin), in discussing hypertension from the cerebral aspect, admitted that in this condition symptoms attributable to involvement of the nervous system were very common, but doubted if all of them were due to the hypertension. In cases in which hypertension accompanied a neurosis, as at the climacteric or in anxiety neurosis, hypertension was just one manifestation of the neurosis. Symptoms attributable to the nervous system were: (1) giddiness, (2) headache, (3) insomnia, and (4) pains and paraesthesiae. Focal lesions in the brain seemed to be explicable by local anaemia of the cortex due to angiospasm. Later, when arterial degeneration had supervened, cerebral haemorrhage was a frequent terminal event. Convulsive seizures were fairly common, especially when alcoholism was present. Dementia might supervene, but the patient rarely became the vegetative creature found in dementia due to other causes.

Dr. M. A. CASSIDY considered the cardiovascular aspect and prognosis. An optimistic prognosis could be given: (1) in the absence of a family history pointing to early cardiovascular degeneration; (2) when the personal history was good; and (3) when the physical examination was negative. Enlargement of the left ventricle, thickened arteries, retinal changes, and evidence of impaired renal function were unfavourable. Albuminuria *per se* was not so important as it was considered to be. A night urine of low specific gravity which remained fixed after the patient had drunk a pint of water was more ominous. Finally, the laity and the medical profession should not take essential high blood pressure too seriously, or foster a blood pressure obsession.

Professor T. W. T. DILLON (Dublin) was unable to be present owing to illness, and Dr. E. T. FREEMAN read his paper on renal function tests in the differential diagnosis of essential vascular hypertension. Indirectly, he said, and by means of its action on the blood, the kidney controlled the ionic composition of the interstitial fluids. He described the tests of Addis, van Slyke, and Conway, and summed up by stating that remarkable advances had been made in recent years, and a quantitative test of great precision had been evolved. There was no satisfactory test of salt and water excretion, though recent physiological experiments would appear to have provided the necessary basis.

Professor JOHN HAY (Liverpool), discussing treatment, said that the first thing was to determine whether associated arteriosclerosis was present. The dangers of discovering high blood pressure in a patient were: (1) the vigorous determination of the medical practitioner to reduce it to what he considered normal, and (2) the patient's obsession with his abnormality and its possible consequences. If the symptoms were marked and tests had to be made, it was advisable to put the patient to bed in a sympathetic environment and to give mild sedatives. In favourable cases the symptoms would abate. Sources of infection, though not a cause of hyperpiesia, should be eliminated. Congenial and non-competitive exercise was beneficial. Weight should be reduced if above the average: complicated diets were not necessary. He discussed venesection, diathermy, and spa treatment. He thought that drugs were comparatively unimportant. Dr. W. D. O'DONOGHUE (Dublin) spoke on the main signs of retinal arteriolosclerosis and the relation between disease of the retinal and cerebral arteries. The earliest signs were chiefly in the veins, later changes were in the arteries. Retinal arteriolar thrombosis was of serious prognosis, although the only other general sign might be mild hypertension. Dr. L. ABRAHAMSON (Dublin) said that infection and coronary thrombosis lowered the blood pressure, but a moderately high pressure in such cases might be a considerable lowering of the normal. Dr. H. O. GUNEWARDENE (Ceylon) said that periods of fasting were of particular value, and that where fasting was regular essential hypertension was unknown, though arteriosclerosis might be present.

Professor MOORE summed up, and thanked the speakers for their contributions. He mentioned the value of a salt-free diet in reducing the symptoms, if not the hyperpiesis.

Sir HUMPHRY ROLLESTON, replying, agreed that it was of more importance to concentrate on the prevention of essential hypertension than to reduce the tension after it had occurred.

SECTION OF SURGERY

Wednesday, July 26th

Head Injuries

With the President, Mr. Charles J. MacAuley, in the chair, Mr. Geoffrey Jefferson (Manchester) opened the discussion on head injuries. He said that at present the treatment was mainly non-operative, and that the use of hypertonic salines was popular. Such solutions should not be used indiscriminately. In an analysis of 1,004 cases of head injury he pointed out that, though the mortality during the first twenty-four or forty-eight hours was extremely high and unavoidable, there were a sufficient number of patients, especially young people, who died after the second day to raise the question of why death occurred after such a period of survival. Unsuspected subdural haematomata were certainly a definite cause, but all late deaths were not due to gross compression, but probably to damage from haemorrhage, secondary oedema, and necrosis. The varying behaviour of the patient during recovery was due to variations in the situation of the chief damage. Mr. Jefferson said that the most important problem was the cause, interpretation, and treatment of post-traumatic stupor. Cases of traumatic stupor could be divided into: (*a*) those in which the patients were deeply unconscious and died rapidly (nothing could be done to save them); (*b*) those in which the patient had recovered consciousness when first seen and could be induced to answer questions (in these the surgeon could intervene if necessary); and (*c*) cases in which the patient remained in a state of stupor or semi-stupor for several days (in this group diagnosis and treatment was most difficult). Mr. Jefferson then considered the aetiology of traumatic stupor. Traumatic stupor, he said, was a basic state in head injury, the result of general damage to the brain; it was not due to oedema. The use of hypertonic solutions at this early stage was therefore contraindicated. They should be employed only when there was definite evidence for their administration, such as high cerebro-spinal fluid pressure. Lumbar puncture should not be done in the first twenty-four hours. Dehydration was only of value in secondary oedema, and its use might increase the chances of intracranial bleeding. Alterations in the state of stupor and in the normal recovery from it might be due to local compression by a haematoma. These added happenings Mr. Jefferson described as the epiphenomena. The recognition of compression by an extradural haematoma was briefly considered. Regarding subdural haematomata, he said the diagnosis was still more difficult. A patient with a subdural haemorrhage might not be unconscious, but might become so unless relieved. In head injuries the pulse rate alone was of little value, but was a reliable guide if it fitted in with the rest of the picture. A slow pulse might develop after a few days and remain slow throughout the period of recovery. Bradycardia occurring during the end of the first week, though the patient was conscious, was due to reactionary oedema. Excellent lantern slides were shown illustrating the points raised in the paper.

Mr. Hugh Cairns said that recent ideas about head injury represented a definite advance in the clinical understanding of these cases. The recognition of traumatic stupor as a basic state common to all cases of head injury, and of such occurrences as extradural and subdural haemorrhage, intracranial infections, aeroceles, etc., as epiphenomena, made it easier to decide the place of operative surgery in treatment. Operation would not help people who suffered from traumatic stupor. It should be reserved for compound wounds and certain of the epiphenomena, especially cases of surface haemorrhage, cerebro-spinal rhinorrhoea, and aerocele. Mr. A. A. McConnell (Dublin) advocated morphine in the management of the excessively restless patient. He mentioned some cases of definite head injury associated with cerebral tumour, and insisted upon the importance of complete neurological examination. Professor H. S. Meade (Dublin) said that the question whether the dura was perforated or not was of great importance, since leakage of cerebro-spinal fluid might prevent compression and possibly save the patient's life. Regarding the pulse rate, he thought that it was the rapidity with which it became slow that was important. It was a danger signal if it occurred rapidly. He was opposed to the indiscriminate employment of hypertonic solutions. He obtained the impression from Mr. Jefferson that exploratory operation should be more frequently carried out for subdural haemorrhage. With this he did not agree. The danger of leaving cases of head injury in charge of a person not specially trained was emphasized, and a plea was made for special centres for the treatment and observation of these cases. He said that when grafts were needed to close tears in the dura the outer layer of the dura could be so utilized. Professor R. E. Kelly (Liverpool) remarked that occasionally operations were done on the wrong side. When a large haemorrhage pushed the brain to one side the brain stem might be so pressed against the tentorium that the patient suffered from a homolateral lesion. Mr. A. J. Walton considered that the amount and site of the pressure within the skull and in the peripheral nervous system was not so important as the rate of onset. Instantaneous rapid lesions he preferred to call "concussion" in its varying degrees. When there was complete loss of function there was nothing to be gained by operative treatment: this should only be carried out when there was evidence of a local lesion. Mr. R. A. Stoney (Dublin) recommended large doses of luminal when the patient was extremely restless. He agreed with Mr. Walton that operation should only be performed in localized lesions. As a general rule, when the pupils were equal and reacted to light he did not operate. Sir Frank Connor (Bombay) said that patients with pre-existing conditions might respond differently to a head injury. He had noticed that an attack of malaria was often precipitated by such injuries, either immediately or later. The President agreed with the previous speakers that careful observation was very necessary to enable the surgeon to operate at the right time, and when necessary. Post-mortem examinations of all cases of head injuries, even when the cause of death was obvious, would do much to increase our knowledge of the subject.

Mr. G. Jefferson, in reply, said he felt that the trend of the discussion made it necessary for him to restate his beliefs. It had not been his intention to advise frequent intervention in these cases. Neither in the past nor at present had he believed that anything approaching to routine operation was a desirable plan. What he had wished to do was to draw attention to the existence of acute subdural bleeding, and to emphasize the uneasiness he felt at the relative frequency of this as a cause of death. His belief that stupor was not due to compression but to the basic state of contusion was not a new view. It was postulated by Th. Kocher many years ago, and von Bergmann was the leader of the dissenters, whose opinion had been incorporated in the textbooks.

Professor R. E. Kelly showed a colour film illustrating the operations of thyroidectomy, cholecystectomy, exploration of the common bile duct, and a plastic operation for ectropion.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Wednesday, July 26th

Puerperal Sepsis

With the President, Dr. Bethel Solomons, in the chair, Dr. Leonard Colebrook opened with a paper on puerperal fever, its aetiology and prevention. He stated that nearly 20 per cent. of all deaths due to childbirth followed normal labour, and that the majority were due to the transfer from an outside source of haemolytic streptococci to the genital tract of the woman in labour. The tentative conclusion was reached that in most cases the source of the infection was in the nose or throat of the attending doctor or nurse, or, more rarely, in the patient's. Dr. Colebrook believed that nasal infections were important, because infected secretions were so easily carried on the fingers of the patient or of the attendant: 5 to 30 per cent. of all persons attending midwifery cases carried the haemolytic streptococcus in the throat or nose. The danger of droplet infection from these carriers was, however, not high, unless the carrier had recently had a tonsillitis, laryngitis, or antral infection. The danger from

contact with infectious nasal secretion was always high. He did not advise the exclusion of every person from midwifery practice who had a few haemolytic streptococci in the throat, but the dangerous carrier must always be watched for. Every patient who developed fever should have a vaginal swab taken, and if haemolytic streptococci were present that patient ought to be isolated from all other lying-in women. He advocated the use of masks, but these had to be used intelligently. Experiments carried out on the sterilization of the skin had shown that a solution of yellow soap was an effective germicide; toilet soap was much less useful. In heavy contaminations washing and bathing with the usual antiseptics could not be relied on. Pure "dettol" or a 2 per cent. watery solution of iodine were the most effective agents for sterilizing the skin, and had the advantage of rendering it bactericidal for several hours. He advocated the use of rubber gloves, which could be repeatedly sterilized when on the hands by soaking in a 2 per cent. solution of iodine, lysol, or dettol, or a 0.2 per cent. solution of biniodide of mercury in spirit.

Mr. L. CARNAC RIVETT read a paper on the diagnosis of puerperal sepsis .The different types of puerperal sepsis should be classified as follows: (*a*) local sepsis in the genital tract; (*b*) septicaemia; (*c*) peritonitis; (*d*) infected thrombosed veins; (*e*) salpingitis and pelvic cellulitis; and (*f*) infection of the urinary tract. In local sepsis the uterus was larger than expected, but was not necessarily tender. An infected perineum showed itself by oedema of the vulva. In septicaemia rigors were not always present. Often the blood culture showed a growth of organisms only when cultivated anaerobically. The anaerobic streptococcus caused a mortality of 20 per cent.; the haemolytic streptococcus a mortality of 80 per cent. In the unlocalized general peritonitis of acute puerperal sepsis the classical symptoms and signs were entirely absent. Pain was rare; rigidity was seldom seen; tenderness was not elicited on pressure, but was sometimes observed on releasing the pressure of the examining hand. Sometimes pain was produced by moving the uterus against the sacral promontory. Diarrhoea and distension of the abdomen were the most important signs of early peritonitis. In such cases he advocated drainage of the pelvis through an abdominal incision 1½ inches long. Infected thrombosed veins were difficult to diagnose. Repeated rigors were common. Urinary infections were very important, and might cause a sudden high temperature often associated with a rigor. Pyelitis of the puerperium rarely gave rise to pain, frequency, or dysuria. Diagnosis depended on the immediate examination of a catheter sample of urine.

Mr. E. FARQUHAR MURRAY (Newcastle-on-Tyne) read a paper on the treatment of puerperal sepsis. He reminded his hearers that parturition took place through a germ-laden area, where tears or lacerations were very frequent. It was only to be expected that sepsis would follow in a proportion of cases, and he thought that too much stress had been laid on droplet infection. He quoted statistics of the Princess Mary Maternity Hospital, Newcastle, to show that the incidence of sepsis had been reduced from 6.7 per cent. to 3.6 per cent. by the strict segregation of clean, suspect, and septic cases. In treatment, fresh air, avoidance of effort, cold sponging in hyperpyrexia, an assimilable diet, and a citrate mixture were all important. Sleep should be procured. Anti-scarlet fever serum in doses of 10 to 15 c.cm., repeated on one or more occasions, appeared to be more beneficial than polyvalent serums. He stressed the importance of treating local sepsis in the vagina and perineum, which was present in 44.4 per cent. of cases. Intrauterine treatment was deprecated. Returning to the question of droplet infection, he stated that no precautions were taken against this at the Princess Mary Hospital. Of the students and nursing staff, 68 per cent. were found to be carriers of the haemolytic streptococcus; yet of 183 clean cases delivered or attended by this team there were only three trifling and transient notifiable pyrexias believed to be due to sepsis.

In the discussion that followed, Dr. GIBBON FITZGIBBON (Dublin) read a short paper dealing critically with the statistics of the infection rate and its relation to organisms present in the vagina before delivery. He upheld the simple antiseptic methods of the Queen's Institute nurses, the East End Maternity Hospital, and the Dublin hospitals. Trauma and ischaemia of the tissues were important factors in the production of sepsis. He proposed that local authorities should encourage practitioners with special obstetric experience, and midwives should be permitted to call in only such practitioners. He suggested that peritonitis was often the result of ill-advised intrauterine douching. Dr. JOAN K. ROSE (Edinburgh) read a paper dealing chiefly with the incidence of genital tract infection and its relation to sepsis. The comparative rarity of severe infection gave individual practitioners a false sense of security. She advocated the use of masks and a strict hospital routine. Professor C. G. LOWRY (Belfast) gave his experience of the treatment of different forms of puerperal sepsis. Elementary rules were often broken: vaginal examinations were sometimes made without first widely separating and cleaning the labia. Bruised and lacerated tissues were allowed to occur which would have been avoided by an episiotomy incision. The third stage was sometimes mismanaged, and an anaemic patient with a flabby uterus was the result. In his own practice he freely used vaginal and intrauterine douches. Haemoglobin estimation was important, and a transfusion should be given when it fell below 50 per cent. Anti-scarlet-fever serum, intrauterine glycerin, and autogenous vaccines were all useful. Professor R. W. JOHNSTONE (Edinburgh) appealed for a united stand for preventive methods. The positive evidence of the danger of droplet infection was convincing, and far outweighed any negative evidence. He strongly advocated the use of efficient masks, and showed a graph which illustrated the incidence of sepsis at Edinburgh Royal Maternity Hospital. There was a striking drop following the introduction of masks. Dr. C. M. CRAIG (Kendal) said that the cause of the lowered resistance to infection which led to puerperal fever was not known; until it was, it was unfair to blame the general practitioner for the occurrence of sepsis. Dr. LEONARD PHILLIPS spoke of the experience gained by Queen Charlotte Hospital workers in the treatment of peritonitis. Early diagnosis was essential, and the results of the early operation as performed by Mr. Rivett were excellent. The classical signs and symptoms of peritonitis were entirely absent in these cases. Pyelitis was frequently overlooked. The ketogenic diet was a great advance in treatment. Dr. G. W. THEOBALD refused to accept the conclusions of the bacteriologists until they had carried out much stricter control tests. Masks had already been shown to be useless, but puerperal sepsis had been, and could be, prevented by adopting conservative antiseptic methods. Midwives should not be trained to make vaginal examinations, as they were dangerous and unnecessary.

Dr. BETHEL SOLOMONS described the practice at the Rotunda Hospital; he was satisfied with the results. He did not use masks, and in the past seven years 26,000 cases had been delivered without an outbreak of sepsis. Recently the throat swabs of 100 members of the staff had been examined: no haemolytic streptococci had been found. He agreed that an individual with a throat infection should be excluded from hospital work. The openers replied to the questions raised.

SECTION OF RADIOLOGY

Wednesday, July 26th

THOROTRAST

Under the chairmanship of the President, Dr. G. HARRISON ORTON, papers were read by Dr. W. P. A. MURPHY (Dublin), Dr. J. F. BRAILSFORD (Birmingham), Dr. H. K. GRAHAM HODGSON, and Dr. A. E. BARCLAY (Cambridge).

Dr. W. P. A. MURPHY, in a paper on the uses of thorotrast, described it as a double salt of thorium, which was unstable and easily precipitated by the tissues. It was more dense than sodium iodide or lipiodol, and much more expensive. It had been employed for purposes of cystography, arteriography, and cephalography, but was most helpful in the radiographic diagnosis of conditions of the liver and spleen, and in abdominal tumours after

routine examination by *x* rays had proved negative. Dr. Murphy showed skiagrams demonstrating the use of thorotrast. Referring to its dangers, the speaker said that death had rarely occurred as a result of thorotrast, but that it was reasonable to suppose that even such a feebly radioactive substance as thorium must have some effect, especially when its action was on the liver and spleen. In this connexion it had been demonstrated that the liver and spleen were still easily visible radiographically two and a half years after the administration of thorotrast. It was absorbed mainly by the reticulo-endothelial system, and until our knowledge of its effects was more certain it should only be given in special cases. Dr. J. DUNCAN WHITE (Edinburgh) referred to a case, described by an American radiologist, in which the spleen, excised post mortem one month after the use of thorotrast, produced definite fogging on a photographic plate after an exposure of twelve hours. This showed that its radioactivity was by no means negligible. He had observed no after-effects in connexion with the cerebral circulation. Dr. BARCLAY suggested that the normal movements of the liver and spleen could be investigated by this means. Dr. BRAILSFORD said that he had seen radiograms of the aorta and its branches demonstrated by the injection of thorotrast into the aortic arch. Administration of thorotrast was unjustifiable except in cases of malignant disease in which the prognosis was hopeless. Dr. J. V. SPARKS said that the liver and spleen could be demonstrated radiographically without the aid of thorotrast, which was therefore unnecessary for this purpose.

SYPHILIS OF BONES

Dr. J. F. BRAILSFORD read a paper on manifestations of syphilis in bones, discussing the changes in infancy, in adolescence, and in adult life. He said that, although the lesions were often symmetrical in infancy, they were usually asymmetrical in adolescence, while, later still, they became few and irregular. In the first two years of life radiography was often the only means of diagnosis, and a negative Wassermann reaction did not exclude syphilis. He described in detail the progressive bone changes, the chief features being the increasing thickness of the diaphyseal extremities of long bones, together with a dentate appearance due to sporadic ossification in granulation tissue. Later there was general osteo-periostitis, with much new bone formation. Syphilitic dactylitis, osteitis of the nasal bones, and Hutchinson's teeth were sometimes observed. In adolescence the changes were the natural result of the progression of the disease from infancy: gumma of the long bones and of the spine and bilateral coxitis might also occur. In the adult the disease might follow congenital syphilis, or might be acquired. In the tertiary stage there were two common forms—gumma, which often resembled sarcoma radiographically and which was commonest in the clavicle, and osteoporosis of the long bones, which might cause spontaneous fracture. Charcot's joints complicated a small proportion of cases of tabes dorsalis. These arthropathies were of two types—atrophic and hypertrophic. They commonly affected the joints of the lower extremities, but sometimes occurred in those of the lumbar spine. Dr. Brailsford illustrated his paper by showing a large number of radiographs.

RADIOLOGY OF THE COLON

Dr. H. K. GRAHAM HODGSON, in a paper on radiology of the colon, said that it was in the early stages of disease that radiology was most helpful, and that, since radiological diagnosis depended on alterations in form and contour, the barium enema was the method of choice. Describing his technique, the speaker stressed the necessity of emptying the colon completely as a preliminary. The ordinary enema was unreliable, and high colonic irrigation was necessary. The patient's position should be altered during the procedure so as to facilitate the flow. Both oblique and postero-anterior views must be taken, this being as important as in the case of bones. If one view only was taken, it was possible for as much as eighteen inches of colon to be obscured by the shadows of other parts of the large bowel. Obstruction to the flow seen on the screen should be investigated by palpation and massage with a low pressure of barium, and manipulation should be continued, if necessary, for half an hour. A more dilute suspension of barium could be used with advantage in cases in which the obstruction was so marked as to involve danger of acute obstruction from inspissation of barium above the stricture. If the barium would not pass the stricture despite these attempts a barium meal should be given. The investigation of appendiceal lesions called for perseverance and care in technique. Either meal or enema could be used, but he preferred the enema, by which means the appendix could be demonstrated in 90 per cent. of cases. The appendix might not fill at once, and it was important to wait as long as forty-eight hours if necessary. Fixation, kinking, stasis, and adhesions could all be demonstrated. In conclusion, the speaker urged caution with regard to negative diagnosis of carcinoma of the colon. He advised radiologists in such cases to qualify the diagnosis and to suggest further examination at a later date. Dr. BARCLAY emphasized the importance of adequate preparation before radiography, and referred to a case in which a wrong diagnosis had been made as a result of the presence of faeces. Dr. M. F. O'HEA (Dublin) said that he was opposed to massage of what might be a malignant growth, and preferred the use of atropine to relieve spasm. Dr. BRAILSFORD said that preliminary *x*-ray examination might reveal the presence of a foreign body, which would be obscured by the barium enema. To avoid the danger of desiccation of barium above a stricture he always mixed the enema with petrolagar. Dr. SPARKS remarked that he preferred to take oblique and lateral views of the sigmoid before the rest of the colon had been filled. Dr. T. G. HARDMAN (Dublin) thought that the head of the enema should be watched throughout its course. A small growth could often be seen by palpation combined with judicious tilting of the patient. Dr. R. CONNELL (Carlisle) described a case of appendicular kinking and adhesions, the radiological findings in which had conformed exactly with the findings at operation. He preferred the barium meal because it demonstrated any existing delay in the ileo-caecal region. Dr. R. M. BEATH (Belfast) referred to the importance of radiographic examination after final evacuation of the enema, and agreed that the oblique view was essential. He advocated barium meal and enema in combination. Mr. MCADAM ECCLES said that if the radiologist could tell the surgeon whether there were adhesions present or not it would be invaluable. In cases of carcinoma of the colon diagnosis must be early, and preliminary examination, followed by barium enema and barium meal, was essential. Radiographic diagnosis was all the more important, because even abdominal exploration did not ensure correct diagnosis in all early cases.

RADIOLOGY OF THE DUODENUM

Dr. A. E. BARCLAY, in a paper on radiology of the duodenum, described the anatomy of the duodenum, especially with regard to its muscular coats. He did not think that our knowledge of the mechanics of the duodenum was satisfactory, because normal movements were so rapid as not to be easily visible on the screen. Investigation had therefore been confined to cases in which food passed through the duodenal cap in bulk. Segmentation seemed a more important mechanism than peristalsis, and the cap remained filled, acting as a passive tube through which the food passed. The regulating force was probably inherent in the muscularis mucosae. It was true that persistent deformity of the cap was suggestive of ulcer, but the condition should not be diagnosed unless the crater was demonstrated, and, further, he had found screen examination with palpation most reliable. Ulcers of the pylorus were difficult to diagnose, but radiologically there was often a marked five-hour residue in the stomach, and the pyloric canal was longer than usual. Duodenal irritability was a well-defined condition, and might precede ulcer. The cap was difficult to see, because it did not remain filled long enough. Relaxation of the pylorus was intermittent. The duodenum acted sometimes as an indicator of the state of other parts of the alimentary tract, especially the ileo-caecal region and the gall-bladder. The speaker had never seen a case of malignant disease of the first part of the duodenum. The PRESIDENT said that

he thought many cases of duodenal irritability were due to smoking, and that small ulcers were very often present. Dr. HARDMAN found it difficult, he said, to demonstrate ulcer craters on the screen, and thought importance should be attached to inadequate filling of the bulb. He was not sure whether an ulcer should be diagnosed when the bulb could not be visualized. Dr. O'HEA said he had found that 90 per cent. of men investigated for gastric and duodenal trouble had pain in the mid-line below the xyphisternum, but he was not sure of its significance. Dr. SPARKS drew attention to the fact that a more fluid meal had been used of late years, and suggested that its consequently more rapid progress should be taken into account. Dr. CONNELL said that gastric and duodenal symptoms were common as a result of enterospasm in patients who were living at constant high pressure, and that this cause should be suspected where the history was suggestive and where no radiographic evidence of abnormality was obtained.

SECTION OF ORTHOPAEDICS

Wednesday, July 26th

TREATMENT OF CHRONIC OSTEOMYELITIS

With the President, Sir WILLIAM DE C. WHEELER, in the chair, Dr. WINNETT ORR (Nebraska, U.S.A.) opened a discussion on the treatment of chronic osteomyelitis. He divided this condition into the primary haematogenous infections and those secondary to compound fractures, though it was important to recognize that the treatment of both groups was essentially the same—namely, adequate drainage and thorough immobilization of the affected limb. He reminded his hearers that both Hunter and Lister had pointed out that frequent dressing of a wound after operation disturbed the natural processes of repair ; yet in spite of this fundamentally sound teaching the practice for several generations past had been to dress infected bone wounds frequently under the delusion that such wounds must be kept "clean." Some ten years ago Dr. Orr, realizing that the results following this generally accepted treatment left much to be desired, began to treat his cases by adequate drainage of the infected bone followed by complete immobilization in plaster-of-Paris, no attempt being made to dress the wound except at intervals of two, three, or four months. The rapidity of healing following this procedure had encouraged him to deal with all septic bone conditions in the same way. The results were most satisfactory, and surgeons the world over who had given this method a trial were equally satisfied.

Mr. R. F. J. HENRY (Dublin) said that during the last eighteen months he had dealt with all his cases of osteomyelitis by Dr. Orr's method, and was convinced of its excellence. His patients were spared the agony of daily dressings, had little post-operative discomfort, and their wounds healed rapidly. He pointed out, however, that some surgeons believed that Orr's method consisted in nothing more than the covering up of an unpleasant sight with a thick plaster case, and were unaware of the fact that a thorough débridement and saucerization of the whole infected area was an essential preliminary ; it was imperative that the operative treatment should be adequate. Mr. Henry was averse to the performance of diaphysectomy as a routine procedure in widespread infection of the shafts of long bones ; he reserved it exclusively for the ulna, fibula, and clavicle. Localized infections of the shaft were to be dealt with by removal of sequestra, if present, and bevelling of the edges of the bone cavity. Chronic osteomyelitis confined to the end of a long bone presented a most difficult problem. Adequate saucerization was impossible if the neighbouring joint was to be preserved intact, and the surgeon had to rest satisfied with a less radical operation. Mr. Henry had attempted to deal with these metaphyseal cavities by turning in pedunculated muscle flaps, but had to confess that this method was both difficult and unsatisfactory. Recently he had made no attempt to deal with the cavity after removal of the sequestrum that was usually present, and, to his surprise, he had found that healing occurred rapidly when the limb was rigidly immobilized in plaster and the operation wound spared the irritation of frequent dressings.

Professor D. P. D. WILKIE (Edinburgh) said that not only was Dr. Orr profoundly convinced of the soundness of the treatment of osteomyelitis that he had evolved—or rather revived—but he had achieved, in addition, the great task of converting surgeons to his own point of view in almost every country. Children in particular owed much to the work of two American surgeons—Dr. Davidson of Detroit, who introduced the tannic acid treatment for burns, and Dr. Orr for his work on osteomyelitis. Both men had done incalculable good in lifting a great burden of suffering from the human race. With regard to diaphysectomy, Professor Wilkie was convinced of its value in cases in which massive infection of the shaft of the bone had occurred. Provided that the *x*-ray film showed the presence of an involucrum one-eighth of an inch in thickness, regeneration of the shaft always occurred in a patient under the age of 17. The only objection to Orr's method was the offensive smell that invariably resulted from the confinement of an infected wound in plaster: in his experience opposition from the nursing staff had been a definite obstruction to the general adoption of this otherwise excellent form of treatment. Dr. M. S. HENDERSON (Mayo Clinic) said that he had to some extent overcome the problem of the offensive smell by cutting a window over the wound and changing the outer dressing (but never the pack in the wound) at fairly frequent intervals. Mr. M. G. O'MALLEY (Galway) quoted the results in sixteen cases of osteomyelitis treated by ordinary methods and twenty treated by Orr's method. In the two groups the mortality was four as against one ; and, in the second, freedom from fever and pain and rapid healing of the wounds had been most striking. In his experience the best remedy for the offensive odour was free ventilation. Mr. WHITCHURCH HOWELL was an advocate of dressing the post-operative wound with bipp in spirit, and of closure with sutures in chronic cases. In his opinion diaphysectomy at any age was a crime. Mr. A. J. D'AHREN (Waterford), an enthusiastic advocate of Orr's method, had found in a few recent cases that a pack soaked in flavine in spirit, 1 in 1,000, had kept the wounds free from odour. Mr. J. K. MONRO was dissatisfied with Orr's method in cases in which there was much discharge from the wound. This might be the result of excessive skin loss or the presence of an incompletely separated sequestrum which could not be removed. Dr. F. ALBEE (New York) confessed that his conversion to Orr's method had been slow, but was now complete. He suggested that, in view of the fact that a potent staphylococcal bacteriophage had been identified, it would be rational to inject solutions of bacteriophage into osteomyelitis wounds after operation. In his clinic he had recently carried out such treatment by injecting bacteriophage of proved potency through a catheter traversing the plaster into the operation wound.

Sir WILLIAM WHEELER said that Dr. Winnett Orr's condemnation of Thomas's splint as commonly applied in compound fractures of the leg was hardly justifiable, as the method of fixation so strongly advocated by Dr. Orr was equally inefficient in the hands of incompetent people. A plaster might be too tight or too slack, and the chief essential in the fixation of an infected bone was not the method employed, but the skill with which the plaster or splint was applied.

Dr. ORR replied briefly, and concluded by showing a cinema film illustrating the essential points in the method of treatment that he had described.

Professor W. S. HAUGHTON (Dublin) read a paper on the transportation and treatment of spinal fractures. He laid great emphasis on the need for moving such cases in the prone position with pillows under the chest and pelvis. This position tended to hyperextend the spine and to correct the telescoping of the vertebral bodies that was the inevitable result of the ordinary type of

spinal fracture. He described a striking case of crush fracture of the ninth dorsal vertebra with involvement of the spinal cord. With no other anaesthetic than one-third of a grain of morphine, the patient's spine was gradually extended, and when full hyperextension had been attained a plaster shell was applied. *X*-ray films showed that the contour of the spinal column had returned to normal, and that the site of fracture was almost indistinguishable. Recovery from the paralysis was rapid.

SECTION OF PUBLIC HEALTH

Wednesday, July 26th

The Housing Problem

The first day's proceedings were opened by the President of the Section, Dr. M. J. Russell (Dublin), who extended a very cordial welcome to the visiting public health workers. He expressed his thanks for the generous help that had in the past been given by medical officers of health of England and Scotland in public health problems in Ireland. He then introduced Mr. Seán T. O'Kelly, Vice-President of the Free State Executive Council, and Minister of Public Health.

Mr. Seán O'Kelly indicated some of the special difficulties which had been encountered in connexion with housing problems in Ireland, especially during the last quarter of a century. He commended the way in which medical practitioners had supported the efforts made by the Government. He was sure that great advances would be made in the next ten years. Although it had not yet proved possible to appoint medical officers of health for all counties, this was being pressed forward. The results achieved by those already appointed had attracted an increasing amount of sympathy and support from the community generally, especially in the difficult question of supplying proper housing facilities.

Dr. C. Killick Millard (Leicester) said that the housing problem of to-day was essentially the problem of housing the poor, the needs of whom had been inadequately met in the past. He outlined the provisions of the new (1933) Housing Act, which abolished the subsidy for ordinary municipal houses and offered encouragement to the building societies. The Government hoped thus to concentrate municipal efforts on the clearance of slums and to secure the building by private enterprise of working-class houses to let. Opinions differed about the wisdom of withdrawing the subsidy empowered by the 1924 (Wheatley) Act, but this was now an accomplished fact and further argument would be futile. The minimum rent of the proposed new houses would probably be 13s. a week, a charge that would usually be beyond the reach of the poor. Dictionaries concurred in assigning two factors to the making of a slum: the character of the building and that of the occupant. Dr. Millard was convinced that the latter was the more important from the medical point of view. Overcrowding was one of the worst features, and the slum problem would not be solved until this had been dealt with. The serious defect of the Housing Act of 1930 was that, while it provided for the "individual" insanitary house, it made no provision for "individual" instances of overcrowding. Under that Act overcrowding could only be attacked when it occurred in a clearance or improvement area, and many bad cases were to be found outside such areas. In any campaign against the slum problem the claims of the children should come first. It was usually a waste of municipal resources to allow municipal houses to be occupied by persons without children. Large families of dependent children constituted the class with the greatest housing need but with the smallest margin for rent. To enable this class to take proper advantage of municipal houses some system of differential renting was desirable, preferably by means of temporary rent rebates based on an approved scale. To compensate for the loss in rental consequent on these rebates such municipal tenants as no longer needed to be subsidized should be called upon to pay the full economic rent.

Dr. J. A. Harbison (C.M.O., Dublin) said that housing of the poor was an outstanding problem in Ireland, particularly in rural areas. For fifty years special efforts had been made in the various Labourers Acts to enable agricultural labourers to live and bring up families on their wages. The war years had brought a promising work to a standstill, and some time had then elapsed before it could be restarted. Forty-two thousand cottages capable of enlargement, had been built at an annual charge (mainly on the rates) of £150,000, but another 22,000 were needed. A further sum of £12,000 was necessary for cottages no longer fit for habitation. Terms had been made more favourable by recent Government legislation. Rents in Ireland had always been considerably lower than in Great Britain. The letting of these cottages was vested in the local authorities, who did their best to give the most help to the larger families. To assist farmers and others the State housing programme included the provision of loans for reconstruction, usually in the form of re-roofing. The grants in all cases were conditional on there being proper sanitation. The Housing Act of 1931 compelled the medical officer of health to notify the existence of unsatisfactory houses to the local authority, who then had to take action.

Dr. E. H. T. Nash thought that the existing unsatisfactory state of affairs was mainly owing to the fact that in much housing work the medical officer of health was not consulted. Many houses now being built were quite unsuitable for the poorer classes, and accommodation for children was not obtainable. Slums were not created so much by premises as by persons. The slum house was often the index of the mental outlook of the mother therein, and education was therefore essential. Not infrequently new houses fell into a deplorable condition within three months. It was necessary to face the fact that there had to be a charge on the State for housing the poorer class. There had been a serious increase in the mortality in the slum population among young adults, largely due to poor nutrition as a result of poverty. Arrears of rent were more common in decontrolled houses. Dr. Nash cited one instance of a specially constructed housing estate where there was adequate playground accommodation. It appeared that this was having a favourable influence on the health of the adult tenants as well as on the children, and the rooms there were kept in good order. Supervision, however, was necessary in many cases, so that the property should not be damaged by a careless or ignorant tenant. Education again came into prominence in this connexion. So far no architect seemed to have solved the problem of accommodating perambulators and their occupants. Some way of keeping perambulators outside the living rooms should be devised. It was also advisable to schedule clearance areas and to investigate cases of deliberate overcrowding designed to secure the award of council houses. The medical side of housing must be accorded its proper importance, and attention must be directed to housing the old people on almshouse lines. Dr. M. Radford (M.O.H., Shoreditch) referred to a resolution passed by the Shoreditch Borough Council requesting the Ministry of Health to explore the possibility of making arrangements whereby free or assisted transit facilities (between their new homes and their places of employment) should be given to poor persons who removed into outlying districts. He thought that without some such plan housing problems in the densely populated and built-over areas in the middle of London would prove to be almost insuperable. Dr. E. H. Milliken (Glossop) said that further information about differential rents was desirable. In many places there were back-to-back houses or houses with no back doors. Some method was required for dealing with rows of these. Dr. W. Paterson emphasized the need for providing houses for three to five occupants. The accommodation for baths was often inadequate. Old people often preferred quite simple housing, which could be supplied cheaply and satisfactorily. Dr. W. F. R. Collis (Dublin) thought that the housing problem was well on the way to solution, but more special consideration should be given to children.

In putting up large blocks of flats there should be provision for nursery schools, possibly on the roof. This would greatly facilitate training in the elements of simple hygiene before the children reached the age of 7. Mr. H. G. SIMMS (Housing Architect, Dublin Corporation) remarked that the ideal minimum house could not be produced at rents which the poorer members of the population could pay. This involved, in his opinion, reducing the standard of the housing. In Dublin, suburban cottages, containing three rooms and a kitchen, had been built in the last eighteen months at rents of about 7s. 6d. a week. Four-story blocks of flats were going up on previous slum areas at 2s. per habitable room. These rents were admittedly not economic, but Government grants and city rates were making the scheme practicable. Two qualifications for prospective tenants were: an income of not more than £2 a week, and there being not fewer than four members of the family under the age of 21. Dr. W. M. FRAZER (M.O.H., Liverpool) said that the present difficulties arose out of the recent developments of the industrial system, and the consequent increasing urbanization of the population without regard to public health considerations. In some places public health clinics were being established in the basements of large blocks of dwellings. The price of houses, alone among modern commodities, had not fallen. Was the cost of land too high, or building material too expensive, or the incidental expense of erection too great? No slum-clearance scheme could be complete without securing the education of the slum-dweller. Professor C. A. BENTLEY, C.I.E. (Cairo), remarked that the housing problem was purely an economic question. Private enterprise might solve some of the problems if Governments and local authorities co-operated. It was necessary to make it possible for people to buy their own houses. Too much charity led to a sense of irresponsibility and indifference to the value of the property.

The PRESIDENT, in complimenting Dr. Killick Millard on his paper, emphasized that education of the poorer members of the population was undoubtedly urgently needed. The housing problem in Dublin was still very acute. Thousands of large houses were now each tenanted by several families, with four or five persons to each room. The Corporation wished in the next five years to provide a large number of suitable houses, and it was hoped that the ratepayer would be able to tolerate the cost. Accommodation was being allotted on the basis of the size of families, so as to benefit the children. The principle of the economic rent would apparently have to be abandoned. Dr. KILLICK MILLARD, replying, said that model tenement blocks had been regrettably decried in England. At its best this block had many advantages for its tenants, especially in the largest cities. Municipal housing authorities had done great work, but had not been able to achieve much for the very poor. Some reduction in the housing standard might be permissible if it involved no impairment of health. The cost of housing had certainly not come down, but it was difficult to define the reason for this. Children must be brought up in a decent environment, even if this involved an uneconomic rent, for otherwise the present conditions would tend to be perpetuated.

SECTION OF PHARMACOLOGY AND THERAPEUTICS

Wednesday, July 26th

THE USE OF DIURETICS

With the President, Professor ROBERT J. ROWLETTE, in the chair, Dr. MURRAY LYON (Edinburgh) read a paper on diuretics in modern medicine from the point of view of pharmacology and therapeutics. He defined diuresis as an increased flow of urine without regard to the composition of the fluid or its source. There were two types: "exogenous," due to increased intake of water, and "endogenous," due to removal of fluid from tissue. Most reputed diuretics acted readily in health, but few were reliable in disease. Digitalis was first introduced in medicine as a diuretic, although it had no diuretic action except in circulatory failure. The diuretic properties of squill were believed to be similar to those of digitalis. The effects of strophanthus on the heart rate were comparable to those of digitalis, but lasted for a shorter period: diuresis was less. The diuretics of the xanthine series acted by direct stimulation of the renal tissues, but had proved disappointing. Relatively large amounts of urea must be given before much effect could be expected as a diuretic. Many diuretic substances worked by osmotic action in the urine; they prevented reabsorption of fluid by the tubules. Some retention of salt appeared to be one essential factor in all oedemas, and restriction of salt intake was a rational measure for favouring diuresis in oedemas of cardiac and renal origin. Citrates and acetates of potassium and ammonium were of doubtful value in cardiac cases and in acute nephritis, but were beneficial in chronic nephritis. Novasurol and, later, salyrgan were employed in resistant cardiac oedemas, but should be avoided in renal cases. To obtain a good effect the heart should first be digitalized, and a better response was obtained if ammonium chloride was given for about three days before salyrgan. Dr. Lyon, having discussed the diuretic properties of hormones and colloids, went on to say that a low protein diet might lessen the kidneys' work, but it certainly caused a fall in plasma proteins. A low protein diet was useful in acute nephritis, but when renal oedema was chronic and there was no evidence of nitrogen retention a normal or high protein diet would probably be of greater value. Decapsulation had been suggested in chronic parenchymatous nephritis. Copious libations or the administration of saline diuretics might be useful in certain fevers and intoxications, or when it was desired to flush the urinary tract. Acute nephritis was best treated by lessening the work of the kidneys and by favouring the loss of fluid, etc., by other channels. Salt restriction might also be helpful. For the chronic oedemas of renal origin diuretic measures were of doubtful value.

Professor LEONARD ABRAHAMSON (Dublin) said that very little advance had been made in treatment of cardiac dropsy by diuretics until a few years ago. In 1920 novasurol (containing 33.9 per cent. mercury) was discovered by Saxl and Poelchen to have diuretic power when used in treating syphilis, but it was very toxic. In 1924 the less toxic salyrgan (containing 37.6 per cent. of non-ionizable mercury) was discovered. This has been successfully employed in 10 per cent. aqueous solution given intramuscularly or intravenously in cardiac failure without gross oedema but with liver enlargement, in cardio-renal failure, and in recurrent oedema. In renal oedema treatment was more complex. Cases of pure nephrosis responded well to diuretics. Acid-forming salts (ammonium chloride and ammonium nitrate) were mostly employed, but resulted in a tendency to acidosis, and should be used with caution: action might be enhanced by salyrgan. Calcium chloride had been found to be less effective and more likely to produce gastro-intestinal irritation. In acute nephritis one ounce of a 20 per cent. glucose solution intravenously had been given with good results. Recently the English drug neptal had been substituted for salyrgan. Dr. F. H. SMIRK referred to the difference of the diuretic action of urea in health and in nephritis. He gave figures showing that, after the administration of 15 grams of urea in 100 c.cm. of water, the chlorides in the sample (collected for four to five hours) were raised up to 0.8 gram per cent. in normal cases, but never reached this value in nephritic cases, even though the urea output reached 2 grams per cent. In advanced nephritis the osmotic pressure of urine approached that of the plasma, and was little changed after giving urea. Some of these changes might be explained in terms of the hypothesis that damaged renal tubule cells were unable to resist the diffusion of water. Professor R. J. ROWLETTE (Dublin) stressed the importance of clinical contributions and the need for further investigation in the mode of action of the mercurial diuretics. Dr. D. C. HARE referred to the fact that a diminution in the volume of urine occurred in cardiac cases given massive doses of digitalis. This was usually considered to be one of the earliest signs of complete digitalization and to be due to a toxic action on the heart.

Discussion on Anaesthetics

Mr. F. J. Morrin (Dublin) read the opening paper on anaesthetics from the practical and scientific aspects. After reviewing the history of anaesthesia, he said that chloroform had been employed recklessly, until coroners' comments on the number of deaths caused it to be superseded by ether, which, though safe, had an unsatisfactory morbidity rate and psychological effect: other anaesthetics had therefore been introduced to overcome these disadvantages. The recent developments of basal anaesthesia marked a great advance. The preoperative amnesia was of immense psychological benefit to the patient: the amount of inhalation anaesthetic was reduced and there was a prolonged period of post-operative sleep, which minimized pain, etc., and aided healing. The list of basal narcotics increased daily—paraldehyde, avertin, nembutal, sodium amytal, sodium soneryl, and pernocton. Each had its advocates, but assertions as to non-toxicity and safety of these drugs could not yet be made. Many anaesthetists considered prolonged post-operative sleep undesirable, and in minor operations this might be a disadvantage. Sodium evipan eliminated this drawback: the duration of anaesthesia was fifteen to twenty minutes, but it was not suitable when muscular relaxation was required. Nembutal given to healthy subjects was well tolerated, but it was not a drug to be employed when dealing with a bad anaesthetic risk. Preference was given to avertin. Luminal administered preoperatively in large doses (10 to 15 grains) was an extremely convenient, safe, and efficient method. The recent practice of giving basal narcotics with a spinal anaesthetic should be condemned, as both produced a fall in blood pressure, and the depressant effect of a basal narcotic on the respiratory centre was undesirable. A satisfactory spinal anaesthetic was the perfect anaesthetic for the surgeon. Novocain was most reliable for producing anaesthesia below the umbilicus; for high abdominal anaesthesia there was occasionally marked fall in blood pressure, nausea, vomiting, and collapse. Percaine (1 in 1,500) appeared to have advantages over novocain for high abdominal anaesthesia. It was extremely toxic if absorbed into the circulation, and there might be individual idiosyncrasy to the drug. A disadvantage of spinal anaesthesia was the inability to localize consistently the level of anaesthesia and the frequency of post-operative headache. Dr. R. W. Shaw (Dublin) said that the use of chloroform and ether, by either open or closed methods, constituted until quite recently the sole resources of the anaesthetist. Modern gas-oxygen technique was an ideal anaesthetic, but did not give the upper abdominal relaxation required for efficient surgery: it might be considered useless unless combined with a basal narcotic. A report on sodium evipan had been issued by the Medical Research Council. It was of great value in short operations, and only one death in 25,000 cases had been reported from Germany. Nembutal was extensively employed orally, and was safe when given this way. It was often combined with spinal anaesthesia. Percaine was the spinal anaesthetic mostly used. It must be admitted that ether preceded by nitrous oxide was still to be considered the anaesthetic most applicable to the majority of cases. Dr. A. R. Parsons (Dublin) said that every anaesthetist should know the simple method for rendering ether pure of all toxic substances. Ill people never feared anaesthetics; it was the healthy to whom pre-anaesthetic sedatives had brought relief. Nembutal by mouth was unquestionably safe, and safe intravenously in experienced hands, but the liver should be functioning well. Chloroform was very dangerous for adults, but safe for children and parturient women. Ether was the least dangerous anaesthetic, but produced pneumonia and abscess of lung. Anaesthetists were not sufficiently careful about sterilization of apparatus, and this might be the cause of many cases of pneumonia. Dr. F. H. Smirk, in a paper on the effect of anaesthetics on fluid absorption from the gut and on the rate of diuresis, showed that ether and chloroform had an inhibitory action on diuresis in five different laboratory animals. It was not improbable, therefore, that a similar action occurred in man. Operations on kidney subjects should therefore be performed under gas and oxygen; in this way the retardation of urine flow might be minimized. Dr. George H. Morrison emphasized Dr. Morrin's statement that evipan sodium was not a basal anaesthetic, but was intended, when administered intravenously, for short full anaesthesia. Although chemically a barbiturate, it behaved differently from those in present use, its chief characteristics being extremely rapid detoxication (in the liver) and a wide therapeutic margin. Only 2.3 to 2.8 per cent. of evipan given was excreted unchanged in the urine. Its dosage was calculated simply on the patient's reaction: it gave short full anaesthesia with pronounced amnesia, and was suitable for minor surgery. The two main problems of the pharmacology of hypnotics were to determine (1) the area of the central nervous system which was affected by a drug, and (2) the intermediate stages of the splitting up of that drug. Dr. H. Quinlan (Dublin) remarked that ether was most extensively employed, and methods should be aimed at to make it still more safe. Intubation aided aspiration of foreign substances below the larynx, especially as practised after the cough reflex had been abolished. The use of nembutal and barbituric derivatives again favoured complications from aspiration. When these complications occurred early localization and diagnosis, by *x* rays if necessary, was important.

SECTION OF DERMATOLOGY

Wednesday, July 26th

Occupational Dermatitis

With the President, Dr. W. J. O'Donovan, in the chair, Dr. W. G. Harvey (Dublin) opened the discussion on occupational dermatitis. He first drew attention to the great increase in the incidence of occupational dermatoses in comparatively recent times. The reasons for this increase were to be found both in the steady increase in the number and variety of industrial processes, and in the provisions of the Workmen's Compensation Act, which had focused the attention of employer and workman on the subject. Factors predisposing to dermatitis were to be found in seborrhoea and hyperidrosis on the one hand, and excessively dry skin or xerodermia on the other. He thought it unfortunate that the precise meaning of the terms "dermatitis" and "eczema" had not been settled. Personally he followed the teaching of Wallace Beatty, that if an eruption possessed the clinical and histological characters of eczema it was eczema. According to this concept eczema and dermatitis should be regarded as synonymous terms. From the specific varieties of occupational dermatoses Dr. Harvey selected for discussion bakers' dermatitis, dermatitis due to dyes, and cancerous conditions. The precise cause of the first-named had never been satisfactorily settled; he regarded it as a disease in which a series of injuries could act like eczematous irritation and have a cumulative effect. Dye dermatitis had been shown to be due to the unoxidized dye itself, and not to any intermediary substance produced in the course of oxidation; complete oxidation rendered the dye absolutely harmless.

Dr. J. C. Bridge dealt with the industrial side of the problem. His observations were illustrated by statistical charts showing the relative incidence of dermatitis in a large number of industries and the established causative agents in these industries. He also discussed prophylactic measures employed in industry. Special attention was drawn to the rather unfamiliar condition of perforation of the cartilaginous portion of the nasal septum in chromium platers.

Dr. M. Drummond (Dublin) discussed the preventive and medico-legal aspects. He recommended protection with rubber gloves or suitable emollients, and a liberal display of warning notices in factories. As regards fitness for work, he thought that a healthy and experienced adult worker, when cured, should be allowed to return, but in young workers with a suggestion of constitutional disease or a previous history of skin disease return to the same work was contraindicated. Medico-legally the two most important points were the establishment of the cause beyond doubt, and the decision as to whether an indi-

vidual who had been the victim of exogenous dermatitis would be liable to develop an idiosyncratic sensitivity to any other external agent.

Dr. W. N. GOLDSMITH said that eczema was a clinical and histological conception, and was a variety of dermatitis. All injuries to the epidermis were followed by dermal vascular reactions, and probably most cases of exogenous dermatitis were originally due to epidermal injury. The actual characteristics of eczema were, therefore, largely due to the intensity and rapidity of the inflammatory process. Dermatitis could be produced by real irritants in all persons. Other substances required the development of sensitization. Subsequent generalization to non-exposed parts might depend on sensitization to a secondary antigen formed from the skin in the primary focus. Cases due to a specific noxa generally cleared up quickly when it was removed. Others which seemed to be due to long exposure to mild common irritants recovered very slowly. Maceration by water or sweat was a common predisposing cause. Reactivity to chemicals was increased by an acidifying diet and decreased by an alkalinizing one. Non-specific desensitization could sometimes be achieved by autohaemotherapy, etc., and *x* rays locally. Dr. H. C. COX gave the analytical results of the examination of 200 furs alleged to have caused fur dermatitis. About half of these contained free para-phenylene-diamine in amount from 0.15 per cent. downwards, but in thirty-five cases the furs were quite undyed. These furs could not have caused dermatitis. He regarded para-phenylene-diamine as a definitely toxic substance, but the product of complete oxidation was harmless. Dr. G. B. DOWLING, dealing with the question of terminology, said that the choice of the term "eczema" or "dermatitis" would always be a matter of personal taste, but as long as we knew what we meant it did not appear to matter very much which term was employed. He could not, however, agree with Dr. Goldsmith that the eczematous reaction could be produced on a normal subject by an agent such as sunlight, and he denied that the oedema, vesiculation, etc., which any normal subject would experience if irradiated strongly enough could be called eczema. He emphasized the overwhelming importance of dermatitis—especially of dermatitis occurring as the result of long exposure to mild common irritants, as opposed to idiosyncratic irritants—compared with other dermatoses, and the importance of hyperidrosis as a predisposing cause. He also drew attention to the value of the prophylactic measures described by Dr. Bridge. A fourth point, about which little had been said, was the mental attitude of the patient who had been labelled as dermatitis and who was receiving compensation. Dr. D. MCKAIL (Glasgow) said that, in his experience as a certifying factory surgeon, probably not 1 per cent. became certified and so known. The increase in the number of cases notified, of which Dr. Bridge had spoken, was due to two causes: (1) the better instruction of medical students, and (2) the action of approved societies under the National Health Insurance Act. These societies refused nowadays to honour certificates to insured persons marked "eczema," and insisted on reference to the certifying factory surgeon. He thought that from the medico-legal aspect it was necessary to have each case investigated in detail, and that if no other cause was discoverable the material used by the workman ought to be labelled as such and a certificate to that effect issued. Dr. R. T. BRAIN referred to the radon treatment of tar warts, outlining briefly the principles of treatment.

Dr. W. J. O'DONOVAN, the President, summed up the discussion He noted how widely the subject had expanded since he first read a paper on it at the Annual Meeting in Glasgow in July, 1922. This subject, that was formerly monopolized by clinical dermatologists, now needed the help of medical factory inspectors, expert chemists, lawyers, and engineers for its full elucidation. He stressed the common feeling among workpeople that in submitting to medical examination and re-examination before compensation they were being frustrated of their natural rights. They had forgotten that the great difficulty in obtaining any compensation under Lord Campbell's Act had been replaced by very great facilities under the Workmen's Compensation Acts. Under a sense of frustration irritation became more intense and more persistent, and, whilst litigation loomed, no ointment would heal. He stressed the formation of a central pool of funds, so that workmen seeking sick pay or compensation might be paid at once, and so that there should be no delay until an expensive decision had been reached as to which society or insurance company should be responsible for the payments. The practising dermatologists saw so much injustice through certificates of dermatitis that such certificates were now granted very sparingly indeed. The statutory period of a week, after which time it became impossible to appeal against a certifying factory surgeon's certificate, was unduly brief. The life-history of many cases of dermatitis was prolonged for months after the patient had been removed from any contact with a dangerous occupation, and only the development of the disease enabled one to assert, at times, with confidence that the original diagnosis of occupational dermatitis needed revision.

Dr. R. T. BRAIN opened the discussion on virus disease in man, and showed a number of lantern slides of elementary bodies and the development cycle of psittacosis virus. His paper was printed in last week's *Journal* (p. 191). He was followed by Mr. J. H. NORRIS (Dublin), who read a paper on the veterinary aspect of virus diseases. The speaker referred chiefly to foot-and-mouth disease, and dealt with the clinical, economic, and preventive aspects of this condition: he drew special attention to the disease in man. Many of the cases reported in medical literature were doubtful—or at least not proven—but there were a few authentic cases in which the presence of the virus had been demonstrated.

SECTION OF OTO-RHINO-LARYNGOLOGY

Thursday, July 27th

ACUTE OTITIS MEDIA

With the President, Sir ROBERT WOODS (Dublin) in the chair, the discussion on the treatment of acute otitis media in acute febrile conditions was opened by Dr. T. O. GRAHAM (Dublin). He first discussed the causation of otitis media, and stressed the different types of infection associated with the various specific fevers, etc. Treatment might be divided into general and local, and the latter into abortive, conservative, and operative. If the drum was not bulging he employed drops of glycerin of carbolic, hot fomentations, and aspirin; early and free paracentesis was essential. The indications for myringotomy were a bulging membrane or persistence of pain and temperature. Subsequent treatment might be "wet" or "dry"; personally he preferred irrigation with boric acid or bicarbonate solution, followed by boric acid and spirit drops. The indications for the mastoid operation might not be simple, but it was safer to operate if there was any doubt in the surgeon's mind.

Sir ROBERT WOODS questioned Mr. Graham's statement that a myringotomy incision healed much better than a spontaneous rupture; what happened depended on the amount of tension on the drum. Peroxide drops were, in his opinion, dangerous, and increased the percentage of mastoid infections. The pain of dressings after a mastoid operation could be completely abolished by using a finger-stall and gauze plug. Dr. J. B. HORGAN (Cork) stressed the value of preventive treatment, and advocated the use in all cases of anti-scarlatinal serum, the avoidance of acidosis, and the employment of heat and hygroscopic drops. Magnesium sulphate crystals were the best for a discharging ear, while the early use of an autogenous vaccine might prevent the onset of polysepsis. The use of hydrogen peroxide should be abandoned in all cases. Mr. A. D. SHARP (Leeds) advocated preventive treatment in the shape of nasopharyngeal disinfection with gargles and sprays. After myringotomy he preferred a wick of gauze and bipp covered by hot fomentations. Mr. H. BARWELL believed that frequent hot syringing was a valuable abortive measure; he also was opposed to the use of hydrogen peroxide. Mr. E. A. MATISON (Adelaide)

discussed the question of inflation and politzerization in otitis. Dr. DAN MCKENZIE said that judging by the speeches the results were the same but the treatments different; it was an unfortunate thing that medicine could not be practised by statistics.

NASAL GRANULOMATA

Mr. P. J. DEMPSEY (Dublin) then read a paper on granulomatous conditions of the nose, which was reported in full in the *Journal* of July 29th (p. 194).

Professor J. T. WIGHAM (Dublin), speaking as a pathologist who had investigated some of these cases, stressed the difficulty of the histological differentiation between granulomata of syphilitic, tuberculous, and other origins, and also from sarcoma and fibroma. He did not like the term "malignant granuloma," but could not find a better one. Sir ROBERT WOODS referred to the cases he had described in 1921; he had seen about five, all of which were in women. Radium and deep *x*-ray therapy cured some, while in others all treatment was hopeless. He was sure that the condition was essentially an infective one. Mr. J. F. O'MALLEY said that he had never seen a case, but certain cases of lupus and rhinoscleroma seemed similar. Dr. ROBINSON asked Mr. Dempsey if he had any knowledge of the frequency of carcinoma of the nose occurring in nickel workers. Mr. SCOTT STEVENSON asked why radium was the only treatment tried. He had had a case of his treated by wide excision which appeared to be cured.

Mr. DEMPSEY, replying, stated that in his experience the disease was equally common in both sexes. In his cases both diathermy and the knife were out of the question. He was quite certain that the condition was due to some as yet undiscovered specific organism.

PLASTIC SURGERY OF THE FACE

Mr. A. B. WATKINS (New South Wales) then read a paper on plastic surgery of the face with lantern slides. He showed many diagrams illustrating the principles of applying and maintaining adequate splinting in fractures of the nasal bones. Probably the most satisfactory was a modification of Carter's splint, made to his design by Messrs. Mayer and Phelps. Discussing implants for "saddle nose," he discussed the difficulty of getting large pieces of cartilage from the ribs without subjecting the patient to a severe pleural reaction. His knowledge of young elephant ivory grafts was limited, but they appeared very satisfactory. It was important to decide whether a columellar graft was also required, or the results might be completely ruined. Other plastic nasal operations discussed were the straightening of a crooked septum, dislocated anterior end of the septum, reproduction of symmetry after excision of parts of the ala, and partial rhinoplasty. The paper was illustrated by lantern slides of photographs and diagrams, which made the various operative steps easily understood. Mr. J. F. O'MALLEY congratulated Mr. Watkins on his excellent paper and results, and remarked on the great patience required for plastic surgery.

SECTION OF DISEASES OF CHILDREN

Thursday, July 27th

DEFICIENCY ANAEMIAS

With the President, Dr. ERIC PRITCHARD, in the chair, Professor L. G. PARSONS (Birmingham) opened a discussion on the deficiency anaemias of childhood. He outlined the recent growth of knowledge of these anaemias, beginning in 1920 with the work of Whipple and developed in this country more especially by Wilkinson, Davidson, Helen Mackay, and Witts. He stressed the conception that the red cells in the blood stream could not be separated from their precursors in the erythropoietic centres, and this was especially important in childhood since the blood-forming portion of the erythron was widely distributed, and in the infant there was very little reserve marrow space. Under abnormal conditions the marrow might show hyperplasia, hypoplasia, or aplasia. The present discussion, according to Professor Parsons, was concerned with the first of these, and the types of reaction could be classified as normoblastic and megaloblastic. Studies of the bone marrow indicated in all probability that in the usual hypochromic, deficiency, or nutritional anaemia of childhood there was a normoblastic type of change. Dealing next with the haematological picture of this type of anaemia, the speaker mentioned the colour index as being about 0.6 in a case of moderate severity, with only a slight diminution in the red cell count, a scanty number of reticulocytes, normal fragility of the red cells, and no constant changes in the platelets or leucocytes. Infection was very likely to occur in infants with this type of anaemia, and the blood picture might then be altered. Professor Parsons then considered in some detail the type of nutritional anaemia due to an inadequate supply of iron (or of iron and copper) in the diet. He quoted the recent observations of Helen Mackay on London babies, in whom a mild degree of anaemia was found to be always present, whether they were breast-fed or artificially fed. It was usually observed from the seventh month onwards, and the baby, although pale, was frequently well grown and well nourished. The anaemia apparently arose in many instances from the fact that neither breast nor cow's milk contained sufficient iron for the needs of the growing babe, and all cases could be grouped according as to whether the iron defect was due to deficient ante-natal storage, deficient post-natal supply, or a combination of both. The effectiveness of iron in the cure of this type of anaemia varied considerably as regards the rate of improvement, and this appeared to be related in part to the preparation of iron used and in part, possibly, to the presence or absence of copper as an impurity. Ferrous salts were more effective than ferric salts, and the best method was to employ ferrous sulphate in doses of 4 grains three times daily, with glucose added to the solution to prevent oxidation. The problem of copper was complicated, and animal experiments were at variance with results in babies. Copper seemed to play some part, said Professor Parsons, in the synthesis of haemoglobin, and was occasionally but not usually necessary for the cure of nutritional anaemia in infants. With yeast experimental work also produced certain difficulties. In coeliac disease a type of hypochromic anaemia arose which yielded readily to iron, and there was a similar type of anaemia present in scurvy, which responded to the administration of vitamin C. Deficient thyroid secretion also resulted in a similar anaemia in cretinism. Lastly, Professor Parsons dealt with the hyperchromic deficiency anaemias, which were very rare in childhood, occurring occasionally in coeliac disease and in rare infection with the bothriocephalus.

Dr. W. A. ALEXANDER (Edinburgh) emphasized the difficulties of research into children's diseases, while pointing out at the same time the extreme simplicity of Dr. Helen Mackay's classic investigations into anaemia. He regarded the present time as the era of renaissance in haematology, and he regretted that the work of Parsons and his colleagues, with its immense practical value, was not as well known to the profession as it might be. It was significant, he continued, that the deficiency anaemias were less frequent in breast-fed infants, and this should be yet another reason for the confident encouragement of this method of feeding by all doctors. Mixed feeding must also be begun early, certainly in the second six months of life, and it was very important to encourage the prophylactic outlook, as exemplified in the case of diet, throughout medical education. He thought it was interesting to see how iron therapy, which had fallen into the background with the disappearance of chlorosis, had come to the fore again; there was no need for anyone to be fearful of iron as a producer of digestive upsets or of constipation. In conclusion, he stressed that pallor did not necessarily mean anaemia, and it was useless to give iron unless anaemia of the hypochromic type was present.

Dr. DOROTHY PRICE (Dublin) spoke of the ease with which it was now becoming possible to classify cases of anaemia in childhood and of the reticulocyte response as a great help in gauging the effect of treatment. In

her experience with examination of the haemoglobin of infants in Dublin she had not found such a marked degree of anaemia as compared with Helen Mackay's figures in London, and the results obtained were more like those published for Danish infants. Out of forty-five cases only eight showed a haemoglobin percentage below 60. The reason for this slightly better position as regards anaemia in Dublin might possibly be found in the fact that a very large proportion of the children were breast-fed, and, although weaning was often late, pregnancies frequent, and the maternal diet deficient in iron-rich foods, it was possible that maternal storage of iron was maintained by means of iron obtained from water or from potatoes boiled in iron vessels. Dr. Price concluded by mentioning that she found raw beef juice and raw eggs of value in preventing the occurrence of anaemia. Dr. R. E. Steen (Dublin), stressing the complexity of the causation of the deficiency anaemias of childhood, especially as a pure dietetic deficiency seemed to be rarely found to blame, went on to speak of the essential identity of the nutritional anaemias of infancy and the hypochromic microcytic anaemia of women of the child-bearing period as described by Witts. He showed how the blood picture was identical in both varieties, and in the aetiology there were the three factors of reduced iron reserves, defective supply in the food, and defective absorption, being associated with achlorhydria in the older group. In the speaker's opinion the achlorhydria might very well be the effect rather than the cause of the disease, and in any case in childhood administration of acid did not cure the anaemia. Dr. Steen also spoke strongly of the need for careful choice of case, since it was useless to treat a child with iron whose hygienic surroundings were at fault. Dr. W. R. F. Collis (Dublin) suggested that subsymptomatic deficiency of vitamin C was probably a more common cause of anaemia than was generally realized. He thought that in hospital wards, where there was a risk of infection, blood transfusion was of value in getting anaemic infants quickly into a better state of resistance. Dr. H. P. Wright (Montreal) described an experiment which he had carried out to see if extra iron added to the diet would help to prevent infection in an institution. No difference, however, could be found between the results in infants receiving extra iron and the control group. He wondered whether a slight degree of anaemia was really of very serious importance. Dr. A. T. McKay (Dublin) described a case of severe jaundice and anaemia in a newborn infant in which liver treatment had no effect.

The President thought that the amount of iron in cow's milk was not so much less than in human milk unless the former was diluted, as it so often was, to a high degree for infant feeding. It was his practice invariably to add iron to the diet of all artificially fed infants in the form of a broth made of crushed bones, which he regarded as a good prophylaxis against anaemia. He also gave nursing mothers Blaud's pill in large doses during the lactation period.

Pulmonary Tuberculosis

Dr. W. R. F. Collis (Dublin) contributed a paper on the prognosis and treatment of pulmonary tuberculosis in childhood. He summarized the modern conceptions of the morbid processes involved, emphasizing that in the primary stage of infection the prognosis was good for healthy children, providing the dose of tubercle bacilli inhaled was not overwhelming and that the living conditions were good. The focal reaction in the lungs in the primary stage, he said, was an exudative process, not unlike that found in other pneumonic conditions, and it might resolve completely, as was illustrated in a series of *x*-ray photographs. When a child thus infected lived in unhealthy slum areas with a poor diet and constant exposure to intercurrent infection the progress was downhill in many cases. In the tertiary lesion—the adult type of phthisis—which was rarely met with in children before the age of 10 years, the outlook was generally regarded as bad. From an administrative point of view it was essential to differentiate these "open" tertiary cases from the primary stage group, since they should never be nursed together. In conclusion, Dr. Collis tabulated the necessary measures required for the diagnosis of pulmonary tuberculosis in childhood. These included an accurate history, both familial and general, a complete physical examination, tuberculin test, *x*-ray examination, sputum examination (with gastric lavage if necessary), and a determination of the sedimentation rate of the erythrocytes.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

Thursday, July 27th

The Family Physician and Mental Disorder

With the President, Dr. Gordon M. Holmes, in the chair, the opening paper on the role of the family physician in the prevention of mental disorder and defect was read by Dr. H. R. C. Rutherford. It was printed in full in our issue of July 29th (p. 188).

In the absence of Dr. J. G. Porter Phillips the discussion was continued by Dr. J. O'Conor Donelan (Dublin), who stressed the importance of prevention of mental breakdown, with particular reference to the strain imposed during school life upon the less brilliant adolescents in their attempt to keep up the pace set by their better-equipped confreres. This was a strain which might often be lessened by the timely intervention of the family doctor. Dr. J. Mills (Ballinasloe) expressed agreement with the opener as to the importance of thyroid deficiency, focal sepsis, and undue strain during the school period in the aetiology of insanity. He drew attention to the help the family physician could give adolescents in their choice of profession, and expressed the opinion that all medical graduates should spend at least two months in an institution for mental disorders before starting general practice. Dr. T. A. Greene (Carlow) was of the opinion that under present-day conditions the influence of the family physician on the lives of the masses was becoming very small. He considered that the hereditary factor in insanity had been overestimated and that too little attention had been paid to pre-natal influences, particularly infections in the mother. The improvement of housing and environmental conditions generally was a sphere in which the medical profession had a useful contribution to make. Dr. R. G. Gordon (Bath) pointed out that in psychiatric practice in England the psychoneurotic patients outnumbered the psychotic by roughly twenty to one, and that it was in the early treatment of the former that the family physician (in whose continued influence the speaker strongly believed) had an all-important part to play. While admitting the importance of physical disorder as an aetiological factor in psychoneurotic states, he thought that the precipitating cause of breakdown was usually psychological—in brief, a failure in the individual's adjustment to his environment. The opportunity for understanding the details of this maladjustment and for supplying the necessary reassurance lay particularly with the general practitioner. As regards mental deficiency, the speaker believed that in such cases a definite cellular defect of the cortex was found, and that a neuropathic heredity was usually present, even though the parents showed no outspoken mental disorder. The family physician should be in a position to give valuable advice as to the wisdom of such unstable persons having offspring. Dr. Potts (Birmingham) stressed the importance of maternal infections, particularly influenza, malaria, and dysentery, in the aetiology of mental diseases. He considered that in any given case many factors were operative, but that the physical causes exceeded in importance the psychological ones, and should be dealt with first in treatment. Dr. Elizabeth Casson (Bristol) referred to the frequency with which Gram-negative, non-lactose-fermenting organisms of the Morgan type could be isolated from the intestinal contents of asylum patients, and to the beneficial results she had observed from vaccine treatment. Dr. C. B. Molony (Limerick) drew attention to the feeling of antagonism, often experienced by practitioners, towards patients suffering from mental disorders. He considered that earlier recourse should be made to psychiatrists in cases of mental disorder, and advocated the more general establishment of psychiatric clinics. Sir

HENRY BRACKENBURY maintained that, though changing conditions were modifying the functions of the family physician, these were in no way being deprived of their usefulness to the masses. He drew attention to the numerous illogical deductions which had been made by previous speakers and the frequent irrelevance of the points which had been made. He particularly stressed the importance of the general practitioner's advice on the subjects of marriage and the birth of children, and observed that only maturity and experience in the practitioner himself could fit him for this important task. Dr. T. R. DAVIES (Llanelly), speaking from the point of view of the general practitioner, made a plea for more cordial sympathy and understanding between the staffs of mental hospitals and the general practitioner in the neighbourhood served. He also laid emphasis on the importance of educating, from a medical point of view, those who were engaged in teaching children.

SECTION OF PHYSIOLOGY AND BIOCHEMISTRY

Thursday, July 27th

NERVOUS CONTROL OF ABDOMINAL VISCERA

With the President, Dr. T. H. MILROY (Belfast), in the chair, Professor D. T. BARRY (Cork) opened a discussion on the effect upon abdominal viscera of sympathetic and parasympathetic excitation. He said that the method adopted for experimental investigation had already been described (*British Medical Journal*, 1933, i, 956). A statement made in that article was to the effect that cardio-inhibitor fibres might be found arising at a low thoracic level in the dog. In man all cardiac branches were said to rise above the root of the lung. When either vagus nerve was excited by a fairly strong current a balloon in most parts of the small intestine showed some degree of external pressure upon it. Stimulation of one or both nerves was followed by contraction in varying degrees. The antagonistic action of the splanchnic tone and vagal muscular impulses was demonstrated by tambour readings before and after splanchnic section. Atropine annulled vagal contraction both before and after splanchnic section, but it was increased by acetylcholine or pilocarpine injections, demonstrating that the fibres concerned were of true parasympathetic nature. Stimulation of the great splanchnic nerve produced, as had been generally recognized, inhibition of the gut and also excitatory actions, both rhythmic and tonic or peristaltic in type. In a given reaction from excitation of one branch of the double system of nerve supply certain elements received by communication from the other branch might be responsible for the result. What was the type of vagal fibres supplying the stomach? Intracranial vagal stimulation was reported to have produced gastric motor responses. While there was evidence to show that the motor fibres to the stomach were parasympathetic, it was probable that the sympathetic fibres conveyed inhibitory impulses. More work had to be done to make clear the mixing of elements in the two systems. The hyper-hypotensive reaction was characteristic of fairly strong stimuli to both peripheral vagi ; atropine did not annul the reaction. This vascular response was not intensified by vagotrope substances, but was definitely annulled by injection of sympathetic paralysants. After section of the splanchnic nerves the vascular reaction to vagal excitation disappeared or was modified considerably. The conclusion from experiments was that both hyper- and hypo-tensive fibres were present in the vagus nerve. An interesting feature of vagal activity was the alteration in renal volume, excitation of vagus giving increase in some cases and marked decrease in others. Atropine had little or no effect on the renal constrictor response to vagal excitation. Acetylcholine, however, given in small doses, first caused a hypotensive effect, which was accompanied by immediate renal shrinkage ; this was followed by a phase of enlargement, and shrinkage again occurred. After atropine, however, the immediate effect of acetylcholine was markedly hypertensive. The disappearance of vagal hypotension after splanchnic section might suggest that vagal depressor fibres passed into the splanchnic system. The influence of the vagus in causing hypotension might be due to the counteraction of splanchnic vascular tone. But after splanchnic section the vagal hypotensive reaction had a tendency to recover.

Professor B. A. MCSWINEY (Leeds) discussed the distribution of vagus and sympathetic nerves. Left and right vagus nerves mixed in the oesophageal plexus ; therefore viscera were innervated from both nerves. Further, "the spinal parasympathetic" fibres supplied the motor fibres through the greater splanchnics. On stimulation of the thoracic sympathetic trunk or splanchnics contraction or relaxation of the stomach resulted, according to the type of stimulus used. With isolated nerve-muscle preparations results obtained pointed to the liberation of a chemical substance at the periphery—acetylcholine. Anatomically it might be possible to speak of two divisions of the autonomic nervous system, yet fibres in the sympathetic nerves might resemble in action and liberation of chemical substance fibres of the parasympathetic, and vice versa. Professor J. R. LEARMONTH (Aberdeen) limited his remarks to the nervous control of the bladder and terminal colon in man: a defect of neuromuscular co-ordination led to mega-bladder, mega-ureter, and megacolon. Records were given of the results obtained by removing the presacral nerve in six cases with this syndrome: three cases were completely relieved, one required division of the internal sphincter of the bladder, and two were unsuccessful, due probably to a heavy bladder infection. Professor JOHN BEATTIE (Montreal) said that lesions of the anterior hypothalamus had been shown to result in peptic and duodenal ulcers; this might be caused by either release of lower centres or by actual irritation of the lesion itself. Stimulation of the tuber cinereum brought about transient vaso-dilatation of the pyloric segment of the stomach and the proximal part of the duodenum, lasting about one minute, and followed by blanching of the serous and mucous coats, with increased secretion of peptic juice. It was suggested that this brain lesion was irritative: if the vagi were cut in the atropinized animal ulcers were not produced. It was possible that prolonged vagal stimulation might in this way result in gastric ulceration. Dr. R. C. GARRY (Glasgow) spoke of the control of defaecation in relation to constipation. There were two stages in defaecation: (1) contraction of the distal colon, and (2) dilatation of the anal canal. These reflexes depended on the integrity of the pelvic nerves and the lumbo-sacral region of the spinal cord. Dr. H. E. MAGEE (Aberdeen) said that ergotoxine and atropine suppressed hyperglycaemia in normal rabbits after administration of glucose by the stomach tube—this was partly due to delayed absorption causing inhibition of gastric discharge. In amytalized rabbits atropine, splanchnotomy, and vagotomy increased the rate of absorption of glucose and the degree of hyperglycaemia.

UREA IN HEALTH AND DISEASE

Dr. W. R. FEARON (Dublin), in a paper on urea in health and disease, said that urea was one of the simplest and most widely distributed forms of organic nitrogen. It was a diuretic, a galactagogue, a solvent, and a precursor of urinary ammonia. Urea was formed almost entirely by the hepatic de-amination of surplus amino-acids. Professor J. W. Jessop had shown this formation of urea to be fairly constant. Owing to its unique diffusibility it was fairly uniformly distributed throughout the animal (with the exception of adipose and renal tissue): the normal range was 15 to 45 mg. per 100 grams fresh material, the average blood values being 18 to 38 mg. per 100 c.cm. One result of this diffusibility was that urea retention did not cause oedema. Physiologically two types of hyperuraemia might exist: (1) that due to increased production and (2) that due to decreased removal of urea. Both types were present in many clinical conditions. Abnormally low values of blood urea had been observed in acute hepatic inefficiency and in increased excretion. Uraemia could be divided into (1) simple uraemia or "urotoxaemia," due entirely to retention of urinary waste products ; and (2) uraemia complicated by

extrarenal factors—for example, vascular hypertension, diffuse arteriolar and arterial disease, etc. The biochemical syndrome of a simple uraemia following total nephrectomy in man had been described by Thompson (1932). The term "urotoxaemia" was suggested as preferable to "uraemia," and might be defined as the pathological condition due to retention of urinary solutes in blood. In normal subjects blood urea might be temporarily markedly raised, with transient symptoms of urotoxaemia: this experimental "hyperuraemia" was profoundly different from that produced by abnormal retention. It was possible that in sustained and increasing hyperuraemia the urea acted as a narcotic.

Professor JOSEPH BARCROFT (Cambridge) said that the constancy of the composition of blood in *p*H, oxygen, water, etc., was well known but not understood. Perfused organs would function within wide ranges of *p*H, etc. The effect of variations in these constants seemed to be on the mental rather than on the bodily functions. It was possible that urea acted in the same way. Dr. GEOFFREY THOMPSON (Dublin) referred to a case of removal of the only kidney. Cerebral convulsions usually associated with uraemia might be caused by spasm of the cerebral vessels or oedema, and it was usually relieved by lumbar puncture. The term "urotoxaemia" was preferable when referring to retention of urinary solutes in the blood. Dr. DUNN said that in experimental nephritis the blood urea could be raised to from 600 to 700 mg. per cent., and if sufficient water was given the animals remained normal; urea had no effect *per se*. Without water, dehydration and uraemia followed, no further rise in urea necessarily taking place.

FOOD AND GOITRE

Sir ROBERT MCCARRISON (India), in a paper on food and goitre, illustrated by lantern slides and pathological exhibits, said that the thyroid was not an organ whose size was unalterably fixed, but one designed to adapt itself to environmental conditions. With variations in size there were also variations in histological appearance, the latter changing with the phases of the gland's activity. Factors influencing the size of the gland included hereditary influences, individual idiosyncrasy, age, sex, sexual activity, psychic factors, season, locality, altitude, distance from sea, sanitary conditions, and diet: of these, diet was the most important. The thyroid had a profound influence on the metabolism of food. Conversely, no organ was more sensitive to food conditions. Excess work might cause hypertrophy, and subsequent strain fibrosis; or, because of improper food, the physiological efficiency of the gland might become impaired. The more perfect the constitution of the diet the more normal and less variable the size of the gland. Further, the diet must be balanced. The chief excesses in ordinary diets were fats, limes, and certain unidentified substances in vegetable foodstuffs. An excess of fat or calcium favoured goitre production, but the effect was neutralized by additional provision of iodine. Certain unidentified substances in some vegetables (probably cyanides) depressed cell oxidation and were goitrogenic: although not due to an iodine deficiency the goitres could be prevented by iodine, thyroxine, manganese chloride, and to a less extent by thymol. There were certain definitely anti-goitrogenic foodstuffs whose value did not depend on their iodine content. Among these were milk, oatmeal, green vegetables, carrots, etc. Oxygen deficiency caused by constriction of the trachea or obstruction in the upper air passages was associated with an accumulation of colloid in the vesicles of the thyroid. Deficiency of vitamins A, B, and C were known to affect the thyroid unfavourably, and there was some evidence that vitamin D might not be without effect. Lastly, the question of iodine deficiency and goitre must be considered. There was no incontrovertible evidence that iodine deficiency was by itself the cause of goitre; nevertheless, a low iodine intake might, in certain conditions of diet and hygiene, predispose to occurrence of goitre, and might be a determining cause of its endemicity. Statistics were given showing the interaction between faulty food and insanitary conditions in the causation of goitre.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-ON-TYNE

Those interested in the University of Durham have been aware that during the past two years various questions with regard to the administration of its affairs, including the question of the security of tenure of its teaching staff, have been raised, and that, with the consent of the Council of the College of Medicine, these matters have been the subject of an inquiry by Sir Amherst Selby-Bigge, who was asked to act in this capacity by the Marquess of Londonderry, Chancellor of the University. The inquiry was prolonged and searching, and the report presented states the conclusions of the commissioner as follows:

SUMMARY OF CONCLUSIONS

The inquiry was extremely protracted, because I felt it desirable that everyone concerned should have the fullest opportunity of saying what they thought and felt. The volume of evidence and the mass of documents submitted was very great. If my analysis of the various controversies or my comments or my conclusions are erroneous, it is not due to lack of material.

I cannot expect that my conclusions will be accepted by all who have been engaged in the recent controversies over the College administration. To a degree unparalleled in my experience of administrative inquiries the issues have been complicated by personal antagonisms and suspicions, and the imputation of ulterior motives.

I think that the action of the Court of Governors in asking that an inquiry should be held was fully justified in the circumstances which had arisen. My best hope is that the inquiry may have done something to clear the air, and that the mere fact that it has afforded opportunity for the expression of views and ventilation of discontents may dispose those interested in or concerned with the College to put aside old disputes and concentrate their energies on promoting its welfare.

I have expressed my views on a good many other points in the course of this report, but I may summarize my principal conclusions very briefly as follows:

1. I am of opinion that the complaint of maladministration brought against the College Council in respect of its action in the case of Professor Hutchens is not substantiated. I consider that the action of the Council was taken bona fide in what it believed to be the interests of the College, was not unreasonable, was not hasty or capricious, was not unfair in respect of procedure, and was taken on major grounds of expediency, the assertion of which does not violate the principle of security of tenure recognized by English universities. As regards particular features of the controversy, I see no sufficient reason to regard the measures of economy affecting Professor Hutchens's department as unfair in intention or result; I feel that in the matter of procedure relating to the division of his department there was an error of judgement on the part of the Council and the College officers, but that the decision to divide it was taken in the honest belief that it would be advantageous to the College; I am not convinced that Professor Hutchens gave the new arrangements prescribed by the Council a fair trial, and I feel that his attitude led to an "impossible position," which occasioned the Council's final decision.

2. As regards the termination of previous arrangements with Armstrong College for the instruction of medical students, I can express no opinion on the merits of the Council's action from an academic point of view. But even if the Council's decision was influenced to some extent by incidents arising out of the controversy relating to Professor Hutchens, I am of opinion that a charge of maladministration cannot be based upon it.

3. As regards the complaints concerning the Council's action as affecting the personnel of the Academic Board, concerning the conduct of the Board's proceedings, and concerning the defeat of proposals aimed at securing reform of the constitution, I regard the various disputes mainly as by-products of the major controversy relating to the case of Professor Hutchens. I find in them nothing to sustain the serious charge of maladministration, though they indicate the need

for reconsidering the Articles under which the College is governed, in several respects.

4. As regards the complaints directed against Sir R. Bolam personally, I find nothing in his actions which is inconsistent with a sincere desire to promote what he believes to be the best interests of the College or which would justify me in inferring motives discreditable to him.

5. As regards the constitution of the College, I am of opinion that there are defects in the Articles both in respect of drafting and substance which have contributed to recent difficulties and which require careful consideration.

Resolutions of the Governing Body

These conclusions have been before the Governing Body, which has now taken action as follows:

"That the Governors do proceed at the Annual Court to appoint a committee composed in equal numbers of members of the Court and of members of the Council who are also members of the Court to consider the recommendations of Sir Amherst Selby-Bigge as to the emendation of the constitution as contained in the Articles of Association of the College, or alternatively, draft provisions of a Royal Charter as may be deemed wise and to report to the Court." Carried unanimously.

"That a small committee, consisting of Sir Francis Blake, Chairman of the Quarter Sessions and the Northumberland County Council; Mr. Angus Watson, Deputy Lord Mayor; and Dr. Heawood, ex-Vice-Chancellor of the University of Durham, be asked to confer with Professor Hutchens and to report to the Annual Court." Carried unanimously.

Australia

[From our Correspondent in Sydney]

The Australasian Medical Congress

The fourth session of the Australasian Medical Congress (British Medical Association) will be held at Hobart, Tasmania, from January 15th to 20th, 1934. Dr. D. H. E. Lines has been appointed president, Drs. H. N. Butler and W. L. Crowther joint honorary secretaries, and Dr. Stuart Gibson honorary treasurer. The whole of the accommodation at the University of Tasmania and the Philip Smith Teaching College has been made available to the Congress through the courtesy of the Chancellor of the University and the Director of Education of Tasmania. There will be ten sections—namely: medicine; naval, military, and air medicine and surgery; obstetrics and gynaecology; ophthalmology; oto-rhino-laryngology; public health, preventive medicine, and tropical hygiene; radiology and electrical therapy; paediatrics; pathology, bacteriology, and cancer research; surgery. The membership fee for those attending will be three guineas, and for those who are unable to attend two guineas. Each member will receive a copy of the transactions. It will be remembered that the third session was held at Sydney, New South Wales, in August, 1929, and that the fourth session was to have been held at Perth, Western Australia, in October, 1932, but had to be postponed on account of the prevailing financial difficulties. The Executive Committee at that time suggested that the session might be held in one of the eastern States of the Commonwealth, where proximity to the larger cities would encourage a good attendance, and heavy transport costs would be avoided. It is pointed out that since accommodation at Hobart is likely to be strained, those desiring to attend should apply for membership as early as possible.

Royal Australasian College of Surgeons

The sixth annual general meeting of the Royal Australasian College of Surgeons was held in Sydney from April 10th to 13th. It was attended by some 200 Fellows of the College, all the States of the Commonwealth and the Dominion of New Zealand being represented. The proceedings were opened at the Conservatoire of Music by Sir Isaac Isaacs, Governor-General of the Commonwealth, and this was followed by the ceremony of the formal admission of fourteen newly elected Fellows. The second George Adlington Syme Oration was delivered by Professor F. Gordon Bell, professor of surgery in the University of Otago, New Zealand, on "Hospital Problems and the Education of the Surgeon." All members of the British Medical Association living in and around Sydney and all members of hospital boards and others interested in hospital problems were invited to attend the opening meeting. The annual business meeting of the College was held on April 11th, and on the same day and the two succeeding ones the Fellows of the College attended surgical demonstrations at various hospitals in Sydney.

Hamilton Russell

Robert Hamilton Russell, F.R.C.S.(Eng.), F.R.A.C.S., who died on April 30th, after a motor accident, at the age of 73 years, was a leader of his profession in Victoria, and his work on hernia and fractures had made him famous throughout the world. In Victoria he was almost idolized by the majority of his fellow practitioners, especially those who had come in contact with him as students; he was beloved by practically all. While on the staffs of the Children's and the Alfred Hospitals he was able to employ his natural skill as a teacher. His wisdom, his culture, the excellence of his methods, and his ability to impart learning to others made his demonstrations and lectures a delight to all who had the opportunity of attending them. Hamilton Russell was truly great and noble, yet was he modest withal. He was a kind and lovable gentleman, a wise teacher, a thinker, and a clinician of great learning. His name will ever be an honoured one in the annals of Australian medicine and surgery.

Royal Prince Alfred Hospital

An increase in the subsidy allowed by the Government of New South Wales has made possible the reopening of the 200 beds at the Royal Prince Alfred Hospital, Sydney, which were closed in April, 1931, owing to financial stringency. A building to house the medical school of the University of Sydney is being erected in proximity to the hospital. It is, of course, necessary for the proper functioning of the medical school that the hospital's full complement of beds should be in commission, and the Minister for Health of New South Wales has intimated that knowledge of this fact influenced the Government in its deliberations concerning the subsidy.

Scotland

Inquiry into Scottish Health Services

The first meeting of the committee which has been appointed to inquire into the policy and organization of the Scottish health services[1] was held in Edinburgh on July 28th, with Sir John Dove-Wilson, K.C., in the chair. On behalf of Sir Godfrey Collins, Secretary of State for Scotland, who was detained in London on important Government business, Mr. John Jeffrey, Secretary of the Department of Health, attended at the opening of the meeting. Mr. Jeffrey first referred to the recommendation of the Lovat Committee, that an independent inquiry into health services should be instituted. This recommendation came at a time when there was growing conviction in several quarters that this branch of the public service was in need of a comprehensive overhaul. The development of health services had been especially rapid

[1] See *British Medical Journal*, July 1st, p. 27.

during the last twenty or thirty years. On top of the basic public health services for dealing with sanitation, water supplies, and food supplies, there had been added, from time to time, national health insurance medical services, school health schemes, maternity and child welfare schemes, specialized services for lunacy and mental deficiency and other conditions, besides other services that will come under the committee's review. It was not too much to say that, looking back on history, the development of these services has been more or less haphazard. No doubt each service was fully justified by the circumstances of the time, but the result was that they had now a congeries of activities, and it was not possible to regard them as they ought to be regarded, under a carefully planned system, as component parts of a common structure designed to achieve a central purpose. The stocktaking which the committee was about to embark on was inevitable. It had become urgent because of doubts whether in fact the services were developing on sound lines and whether they were doing their jobs in the most effective and economical manner. Some of the services appeared to be lagging behind the rapid growth of knowledge of prevention and treatment of disease—more especially prevention. Difficult administrative problems were also emerging—for example, the relation of the general practitioner to the statutory health services, the future of Poor Law medical service, and so on—and these problems could not be determined until they were quite sure of their aim and what was the most desirable line of development for the future. The fundamental question was the aim or aims of national health policy. It was no light task, Mr. Jeffrey continued, on which the committee was about to embark. The terms of reference had been deliberately framed so as to make the inquiry both fundamental and comprehensive. The committee would have to take stock of all that was being done to promote and safeguard the health of the people of Scotland. It would have to look at the aims and history of the several branches and assess their worth against what was considered the aim or aims of policy. The importance of the committee lay in the fact that the future of Scotland depended in large measure on what was done to promote the physical and mental quality of the people. The policy and organization of the future could not but be influenced by the conclusions which this committee arrived at. The Secretary of State had asked him to say that he would follow the work of the committee with great interest.

The committee, on Mr. Jeffrey's departure, proceeded to consider the scope of the inquiry and procedure. The chairman briefly reviewed the problem, and suggested that in view of the comprehensive and fundamental nature of the inquiry no decisions as to procedure should be taken at present. This meeting should be regarded as preliminary. After a general discussion, the committee adjourned until October. Its terms of reference are "To review the existing health services in Scotland in the light of modern conditions and knowledge, and to make recommendations on any change in policy and organization that may be considered necessary for the promotion of efficiency and economy."

International Dental Federation

The twenty-seventh annual meeting of the International Dental Federation, including representatives from nine countries, opened on July 24th in the Royal College of Surgeons of Edinburgh. Mr. J. W. Dowden, President of the College, in welcoming the delegates, said that these conferences were a great stimulus to men from different parts of the world, who were apt to look at problems along different lines. Dr. Georges Villain of Paris, president of the Federation, said that this Federation was founded in Paris in 1900, and its first general meeting was held at Cambridge in the following year under the presidency of Sir Michael Foster. This was the fourth meeting held in Great Britain. The Federation had as its object the organization of the dental profession for the advancement of dental science. It was a special pleasure to meet in Edinburgh, which was regarded as one of the principal centres of dental education. At the close of the opening session Dr. William Guy, F.R.C.S.Ed., who is retiring from the position of dean of the Edinburgh Dental School, was presented with a portrait of himself, to which colleagues and past students had subscribed. Dr. Guy, in returning thanks, said that when he became dental surgeon to the Royal Infirmary in 1895 chloroform had been the anaesthetic continually used in dental operations which required more time than the brief period of unconsciousness produced by nitrous oxide, and fatalities were then distressingly frequent. To-day in the Edinburgh Dental Hospital, however, between 5,000 and 6,000 operations were performed each year without fear of accident or mishap by the method of single-dose anaesthesia which he had adopted.

Central Midwives Board

The examinations of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, have just concluded, with the following results:

Out of 140 candidates who appeared for the examination, 122 passed. Of the successful candidates twenty-seven were trained at the Royal Maternity Hospital, Edinburgh; eleven at the Elsie Inglis Memorial Hospital, Edinburgh; two at the Deaconess Hospital, Edinburgh; thirty at the Royal Maternity Hospital, Glasgow; nine at Stobhill General Hospital; three at the Eastern District Hospital; one at the Western District Hospital; nine at Bellshill Maternity Hospital; seven at Govan Maternity Hospital; two at Barshaw Hospital, Paisley; five at Motherwell Maternity Hospital; two at the Maternity Hospital, Aberdeen; nine at the Maternity Department, Royal Infirmary, Dundee; two at the Royal Infirmary, Perth; one at the Royal Infirmary, Stirling; and the remainder at various recognized institutions.

England and Wales

Welsh Board of Health's Report

The report of the Ministry of Health for the year 1932–3 (Cmd. 4372, H.M. Stationery Office, 5s. net) contains a section dealing with the activities of the Welsh Board of Health. The work of the Department is reviewed under the headings of national health insurance, contributory pensions, and public health. There were in Wales at the end of last year 968,200 persons insured for health insurance purposes, of whom 211,150 were women. A total sum of £1,733,600 was paid out in benefits; sickness benefit accounted for £641,300, disablement benefit £369,100, maternity benefit £92,500, medical benefit £515,800, and other benefits £114,900. The cost of administration was £322,900. Claims for sickness and disablement benefits continued to decrease, though heavy increases in claims were general in the early weeks of 1933, during the severe influenza epidemic. During the year a series of conferences of representatives of approved societies and insurance practitioners was held with the object of promoting a better understanding of the requirements as to medical certification. There were 916 doctors (including twenty-nine women) giving treatment to insured persons in Wales, and 2,601,288 prescriptions were issued by doctors. The total payment for medicines and appliances supplied by doctors and chemists was £105,600, representing an average cost of 2s. 4.7d.

per insured person. Ten doctors practising in sparsely populated rural areas in Wales attended post-graduate courses as a result of the provision of grants towards meeting the cost of their locumtenents, travelling and subsistence expenses, and course fees. These doctors attended the fortnight's course specially provided for them in Cardiff by the Welsh National School of Medicine. The standard of service provided for insured persons continued to be on the whole satisfactory. It was necessary to deal with breaches of terms of service on the part of some practitioners, and in twenty cases amounts varying from £1 to £10 were withheld from remuneration. In the section on public health and sanitary administration it is stated that there were in Wales on March 31st, 1933, thirteen county medical officers of health and 145 district medical officers of health, of whom fifty held the D.P.H. The Department's medical officers continued the series of surveys of counties and county boroughs in Wales, which are being made in order to ascertain whether the councils are maintaining a reasonable standard of efficiency and progress in the discharge of their functions relating to public health services. It was not disclosed that any one service called for special criticism, but the survey reports have emphasized the need in rural Wales for the further enlightenment of the inhabitants in matters pertaining to personal and domestic hygiene and to diet. One recommendation is that expectant mothers in remote country districts should come to the towns for confinement in order to secure a higher standard of medical care for the mother during labour and the puerperium. The death rate from tuberculosis in Wales for 1932 was 977 per million of the population ; this is the same as for 1930 (last year it was 1,065), and is the lowest yet recorded for the Principality. Treatment for tuberculosis in Wales is provided by the Welsh National Memorial Association, on behalf of the county and county borough councils, in accordance with the scheme made by the Minister of Health, after consultation with the councils, under the Local Government Act, 1929. The association controls seventeen residential institutions, which provide 1,487 beds ; additional accommodation is proposed by the erection of a new hospital for 300 beds at Sully, near Cardiff. There were fourteen centres in Wales for the diagnosis and treatment of venereal diseases, including three auxiliary centres working in conjunction with maternity and child welfare centres. The report states that there has been no marked expansion of maternity and child welfare schemes, but that several of the authorities have taken steps to improve their maternity services. The infant mortality rate for Wales for 1932 was sixty-nine per 1,000 live births, as compared with an average rate for the last five years of 71. The puerperal mortality rate for 1932 was 6.26 per 1,000 live births ; for 1931 the rate was 5.43. There were 291 maternity and child welfare centres at the end of 1932, and 25,318 children under 1 year, or 63 per cent. of the total number of live births notified, attended these centres for the first time during the year. Ante-natal clinics amounted to seventy-four, and the number of expectant mothers who attended was 8,589, or 20 per cent. of the total number of births notified. There were 1,648 midwives practising in Wales last year, and 86 per cent. of the total births registered were attended by midwives.

London Voluntary Hospitals

The annual statistical review for 1932, published by King Edward's Hospital Fund,[1] provides further proof of the strength of the financial supports upon which the voluntary hospitals of London rest—namely, voluntary gifts and contributions for services rendered. Despite adverse circumstances voluntary gifts, other than legacies, showed an increase of £36,000, while the total voluntary gifts to the maintenance of these hospitals amounted to £1,699,000. The detailed figures show an increase of £18,000 in the amount received from the general body of subscribers and donors, though, as was to be expected from the financial stringency of the last two years, the total was less than the high figures of 1928 and 1929. There was also an increase of £19,000 in the grants from the King's Fund in aid of maintenance. If receipts for building and endowment are included, the total voluntary gifts in 1932 amounted to £2,173,000. The next source of income, receipts for services, again showed an advance on previous figures, reaching a total of £1,463,000. In 1932 the total income of the 145 London hospitals covered by the review amounted to £3,826,000, only £3,000 less than in 1931, when legacies totalled a larger sum than usual. Notwithstanding an increase in the volume of work, the hospitals were able, as the result of special efforts, to effect economies that reduced the total running expenditure by £28,000. The net result was that the aggregate surplus of income over expenditure for the year was £101,000, as against £76,000 in 1931. If the individual hospitals are taken separately 1932 shows a further improvement over 1931 in the total amount of the deficits, £100,000 against £124,000 in 1931, while there was only a slight set-back in the numbers, 85 having surpluses and 60 deficits, as against 87 and 58 respectively in the previous year. No doubt some of the hospitals with deficits were in a position of serious difficulty, but hospitals with deficits one year are often among those with surpluses in the next, as a result either of better fortune or of special effort. The results of the past three years of financial depression must have laid at rest, so far as London is concerned, the doubts expressed during that time as to the effect of the economic crisis on the finances of the voluntary hospitals. And now that there are signs suggesting that the clouds may be beginning to pass, the evidence of the figures inspires the hope that, if the public continues to recognize the value of their work and of their special contribution to the hospital service, the London voluntary hospitals, having weathered the storm, will go forward with renewed strength.

[1] King Edward's Hospital Fund for London, 10, Old Jewry, E.C.2. (Price 1s., post free 1s. 3d.)

Maternal Mortality

The following correspondence has passed between the National Federation of Professional Workers and the Minister of Health.

32, Gordon Square, W.C.1,
July 15th, 1933.

DEAR SIR,

This Federation, which includes public health officers among its affiliated organizations, is much concerned on behalf of the maintenance and the extension, whenever and wherever possible, of maternity and child welfare work. I am desired by my executive committee to express to you the anxiety of this Federation at the evidence to be discerned in some quarters of a dangerous desire to economize in these very vital services.

We believe that you and your responsible officers would view with considerable concern any sign that the local authorities were restricting these services or were failing to extend them in due proportion to the ever-increasing needs of the work. There is, however, reason to believe that various local authorities still fail to make full use of their powers under the Maternity and Child Welfare Act of 1918, and we should be glad to learn that you are taking steps to see that such authorities are rising to the full measure of their responsibilities.

Yours truly,
STEPHEN W. SMITH,
General Secretary, National Federation of Professional Workers.

Ministry of Health, Whitehall, S.W.1,
July 26th, 1933.

Dear Sir,

I am obliged for your letter of July 15th on the subject of the maternity and child welfare services, telling me of the anxiety of the National Federation of Professional Workers lest the efficiency of these services should suffer as the result of the desire of local authorities generally to effect economies. The maintenance and development of these vital services is, by common agreement, a matter of first necessity. The policy of the Government in the matter was dealt with by me in the House of Commons on July 7th, when I said that constant pressure would be brought to bear wherever necessary to raise to a proper level the standard of the maternity services. This policy is also emphasized on page 3 of Circular 1311, issued to local authorities in March last; and the intentions of the Government and the Ministry of Health in the matter having thus been made widely known to local authorities generally, I do not consider that any further steps are at the moment necessary to bring them to notice. Full advantage will be taken of the special opportunity afforded by the general survey of the health services of local authorities by medical officers of the Ministry now in progress to press for necessary developments, and ensure that a proper standard of efficiency is maintained.

Publicity has been given to a statement that there has been a recent "deplorable increase" in the maternal death rate. The deaths per 1,000 live births during 1932 were indeed 4.21 as compared with 4.11 in 1931, an increase of 0.01 per cent. of live births. The rate for 1932 was, however, lower than that for the three preceding years, 1928–30, which were—1928, 4.42; 1929, 4.33; 1930, 4.40. It is not possible to attribute these small variations in the yearly rate to any specific causes, or indeed to assign to them any statistical significance. The suggestion has been made that the increase in 1932 is connected with the amount of loans sanctioned during the year for maternity homes, etc. The suggestion is obviously baseless. A reduction of fresh capital expenditure could not reduce the efficiency of the existing services. It would have no effect of any kind in the same year. In fact the number of ante-natal clinics in England increased by eighty-four during 1932, making a total of 1,277 such clinics, and there was also an addition of 274 maternity beds during the year. These facts show that local authorities generally are continuing to improve and increase the maternity services.

It is indeed a matter of concern, with which we cannot be satisfied, that the maternal mortality rate, although it has shown no increase of any statistical significance, has not shown the same marked and satisfactory fall that has been shown of late years both by the general death rate and notably by the infant mortality rate. It is this that makes it necessary to press ahead wherever necessary with raising the standard of the relevant services. But it can serve only to weaken our attack upon the evil to attach an exaggerated significance to minor variations in the rate, and to attribute them to causes with which they are wholly unconnected.

In view of the importance of the subject, I am sending the correspondence to the Press.

Yours faithfully,
E. Hilton Young.

The Housing Problem

At the end of September and the beginning of October the Minister of Health, Sir Hilton Young, proposes to visit the areas of certain local authorities in order to make closer contact with the personnel and work of the authorities. Among the conditions to which he will devote particular attention will be the practical and local aspects of slum clearance and reconditioning. His visit will coincide with the period during which housing authorities in general have been requested by the Minister to submit schemes for dealing with slums within a period of five years. In the autumn of last year the Minister of Health paid similar visits to Tyneside and the counties of Lancashire, Glamorgan, Monmouth, and Brecon. This autumn the authorities to be visited will be for the most part county boroughs.

CORRESPONDENCE

Treatment of Leg Fractures

Sir,—Mr. Wardle's article on "Fractures of Both Bones of the Leg," in the *Journal* of July 22nd, raises so many controversies that it is impossible to discuss them all in a short criticism. Several statements, however, cannot be allowed to pass without protest.

No one will disagree that in the reduction of fractures correct alignment is more important than perfect apposition, but surely we do ourselves great discredit as surgeons if we believe we are not skilful enough to achieve both criteria in almost every case without the awful and dire results to union and adjacent joints that the author so gloomily forecasts. His difficulty in obtaining good apposition seems to be due to the fact that he applies plaster without traction—no oblique or comminuted fracture can be held reduced without traction, however complete the anaesthesia, and skeletal traction need be no more forcible than manual traction.

I am quite prepared to agree that practically all leg fractures can be reduced by manual traction if they are seen early enough, provided there is an adequate team, but such a team is not always to hand and the surgeon must have at his disposal a single-handed method.

One is surprised to find the author advises fixation of the knee in extension for these fractures; if such a position is adopted the leg will rotate within the plaster at the site of fracture. The knee, of course, should be semi-flexed in order to prevent such rotation, and there is no comparison between the comfort of the two positions.

When Mr. Wardle refers to recent compound fractures he does not mention reduction of the fractures by direct manipulation at the time of operation—surely all surgeons are agreed upon this as a routine measure. Complete rest is one of the secrets of obtaining union in a compound fracture, and to suggest that a split plaster is adequate immobilization for a compound tibia and fibula is certainly wrong. Compound fractures treated by packing with vaseline gauze and by enclosure in plaster become a pitiable mess; the patients are an embarrassment to relatives and neighbours, they are a plague to their doctors, and they are a disgrace to the surgery of the land that gave birth to Lister.

The author admits having to replaster compound cases ten days after primary treatment, and mentions the possibility of slipping. I suggest such slipping to be the rule rather than the exception—the method is one I have tried myself and found wanting. There is nothing easier in the world than the treatment of a compound fracture of tibia and fibula on a Thomas splint using fixed traction with a pin through the ós calcis. The method fulfils all desiderata: fixed traction can be maintained throughout and gives the fracture complete rest; the wound can be left alone as long as it does not smell; dressings, when required, can be done without fear of disturbing the fracture; union can be determined as soon as it has occurred, whereas it is always doubtful if the bones have joined until a limb has been removed from plaster—that is, until fixation is lost.

Mr. Wardle then considers other methods. With his remarks on open operations in simple fractures I am in entire agreement, but when he condemns skeletal traction in such a whole-hearted way one is bound to believe he has little experience with the method. I am far from believing in sticking nails into every fracture I see, but really those who use skeletal traction must be credited with a certain amount of skill. Mr. Wardle should realize that unless gross carelessness is used a fractured tibia and fibula cannot be over-extended by the ordinary skeletal traction used to reduce the fracture because the maximum

length of the limb is fixed by the deep fascia and intermuscular septa, which are like sheets of linen and do not stretch, except under a strong traction over a long period.

Mr. Wardle gives three reasons against the use of skeletal traction—sepsis, pressure sores, and stiff ankles. We in Leeds have treated large numbers of fractures with pin traction. Sepsis only occurs when pins have to be kept in more than six weeks, and it is only in the very severe fractures that this is necessary ; the organisms are saprophytic and the infection quickly clears up with mild antisepsis on removal of the pin. Pressure sores can be avoided with care, and stiff ankles, which are very rare indeed, are due just as much to the injury at the time of accident as to pin traction ; no one with an extensive experience of skeletal traction would advance these objections.—I am, etc.,

Leeds, July 26th. R. BROOMHEAD.

SIR,—Mr. E. N. Wardle, in his article on fractures of the tibia and fibula, has launched an attack against the use of skeletal traction which cannot be allowed to pass unchallenged.

I should like to deal briefly with some of the disastrous complications which Mr. Wardle suggests may follow this method of reducing such fractures. (1) Sepsis following the introduction of a pin through the os calcis is almost unknown, provided that the pin is not retained as an instrument of traction for a long period. (2) Circumferential pressure at the edge of the window cut over the dorsum of the ankle can always be prevented by undercutting the margins of the window. (3) Skeletal traction properly applied cannot possibly cause "an enormous amount of damage" to the soft tissues. (4) There is no theoretical evidence to suggest that stiffness of the knee or ankle results from skeletal traction, and in practice these complications are not encountered. (5) Far from favouring non-union, reduction by skeletal traction ensures better end-to-end apposition, and consequently minimizes the possibility of non-union. Mr. Wardle's impression that union is more rapid in the presence of lateral displacement (other factors being equal) is contrary to all accepted beliefs about the union of fractures.

It is to be hoped that Mr. Wardle's exaggerated criticisms of a useful method of treatment will not prevent its adoption by those surgeons who have not yet experienced the efficacy of this method.—I am, etc.,

NORMAN ROBERTS, M.B., B.S., F.R.C.S.

Liverpool, July 22nd.

Total Hysterectomy for Non-malignant Conditions

SIR,—I have long recognized Dr. Herbert Spencer to be a brilliant controversialist—"never wanting arguments to prove him in the right." Perhaps if you had found space for the illustrations which accompanied my paper, Dr. Spencer's criticisms in the *Journal* of May 6th (p. 802) might have been modified. Be that as it may, I still maintain that, as my operation leaves no portion of the uterus except the outer layer of the supravaginal cervical muscularis, and as it is impossible for cancer or infection of the uterus to occur when the operation has been properly performed, the title "total hysterectomy" for all practical purposes is correct.

I have demonstrated the operation to many surgeons, and after examination of the specimens, which is always carried out, no one has said that any structure had been left behind which could be a source of danger or ill-health, or that the operation was not a total hysterectomy. The rare cases where cervical development of a myoma has involved the portio are, as Dr. Spencer says, unsuitable for my operation. For such I have carried out a complete hysterectomy, using the technique described in the *Journal* of April 29th only up to a certain point. The difficulty of dealing with these cervical tumours vanishes to a great extent if a miniature Australian wool-hook, one of which I presented to Dr. Spencer many years ago, is used to haul the uterus upwards, as if one were pulling a cork from a bottle, while at the same time the scissors working close to the tumour enucleates it, allowing the ureters and other important structures to fall away in safety.

The danger of sarcoma mentioned by Dr. Spencer is remote, and is far more than outweighed by the great advantages of my operation, as detailed in the paper in question. With regard to embolism, I did not suggest catgut as a cause, but possibly silk. Also I did not say I had never had a case of embolism. I have had three in my surgical experience, but not one (it so happens) following the operation by this method. As to fibrosis uteri, Dr. Spencer says this condition "never requires the mutilating operation of hysterectomy." The Doyen hysterectomy, by destroying the keystone of the vaginal vault, shortens the vagina, interferes with the sexual function, and favours prolapse, and therefore may be correctly described as "mutilating," but such a term is in no way applicable to the operation which I advocate, which presents none of these defects and which gives the patient a sense of well-being to which probably she has long been a stranger.

With great deference to Dr. Spencer, I submit that for a woman approaching the menopause suffering from haemorrhage and discharge there is no treatment—electric, diathermic, or radiological—which with such certainty and safety will cure her symptoms, remove the septic focus in the cervix, secure her against the development of cancer, quickly restore her health, and leave no unpleasant sequels (always provided the ovaries are not interfered with) as the operation which I laid before the profession in the *Journal* of April 29th (p. 741).—I am, etc.,

Sydney, Australia, June 14th. RALPH WORRALL.

"Mutation of Tubercle Bacilli"

SIR,—In your issue of July 29th appears a communication from Dr. Nathan Raw on "Mutation of Tubercle Bacilli." Dr. Raw evidently finds it easy to explain the causation of pulmonary tuberculosis. But it is not easy to accept his facts, nor easy to accept his conclusions. I read his account of a case of pulmonary tuberculosis with previous glandular disease, as reported in the *Journal* of February 27th, 1932. As a serious contribution I was amazed it should have been published. "Presumably bovine" is valueless. He reports a further case now—and this report is to my mind also valueless. "Examinations of the pus and glands, and animal inoculation, showed definite bovine tubercle bacilli." We are asked to accept this statement, and no proof is furnished to substantiate it. Was the virus grown direct from pus or gland? Would he publish a complete proof of the results of animal inoculation with this virus? Can we have the same proofs for the virus from sputum?

Even should Dr. Raw be able to satisfy those competent to judge the type of culture, has he proved his case? He has not. He neglects the possibility of a "second infection" after the *recovery* from the "first," and this "second infection" might have been human type. It is well to review the work of competent observers, and surely Dr. Raw should not brush aside all the work of Dr. Stanley Griffith and others on types of

bacilli in various tissues, and on one bit of evidence acceptable to himself seek to make such sweeping assertions as follow in his communication.

How does Dr. Raw explain the fact that most of the cases of bone and joint tuberculosis in children are due to human type tubercle bacilli? My own figures[1] in bone and joint lesions (56 per cent. in children under 5 years and 78 per cent. in children 5 to 15 years) are human type infections, and Dr. Griffith's figures[2] are 66 per cent. human type in children under 5 years and 76 per cent. in the age group 5 to 15 years. In other lesions we find similar figures. Tuberculous meningitis in children gives 70 per cent. human type viruses. If Dr. Raw is to be believed, then mutation has been very rapid in all these children. But let us take it that mutation may be possible. Why do we not hear of a transitional type from him? I have recovered a bovine type virus of full bovine type virulence to the rabbit from a hyperplasia of bowel in a woman of 53 years.[3] Surely there was time for mutation here. And, lastly, possibly I have had more opportunity than any other observer of examining viruses from multiple lesions—glands and sputum, bone and sputum, testis and sputum, etc.—and never have I encountered a virus which differs in type in one lesion from that in another.

There are many other points on which one would care to ask questions, particularly as to the alleged paths of infection; and what does Dr. Nathan Raw mean by primary pulmonary tuberculosis? I have sought rather to point out that this belief of Dr. Raw is absurd, and I hope it will not blind anyone to the greater problem—the protection of the child from infection from the human type bacillus of human origin.—I am, etc.,

W. T. MUNRO, M.D., F.R.C.P.Ed.

Glenlomond by Kinross, July 29th.

Allergy

SIR,—In his address on allergy (*Journal*, July 8th, p. 43) Dr. G. W. Bray emphasizes the importance of heredity. "During childhood the chief aetiological factor is the hereditary tendency, which can be demonstrated in one-half to two-thirds of all cases." He might go further and say that a hereditary element enters into 100 per cent. It enters even in bunions, and in the choice of shoes that go to make bunions. What Dr. Bray does not say is that 50 per cent. of his asthmatic children are "only" children—and the "only" child is a pampered child—and of the remainder he does not say how many are the first child, and therefore the "only" child till number two comes along to give number one a chance of less pampering. Without pampering, less allergy—and less heredity. The hereditary element, however big it seems to bulk in statistics, probably does not on the whole *weigh* more than 10 per cent. in prognosis and treatment, for by simple treatment directed to food, bowels, bath, and exercise 90 per cent. of asthmatic children get well and stay so. (One type of case, however, in which heredity weighs enormously is the tall, underweight, hypopoietic, eosinopenic type—a small class, and refractory to treatment.) There is less chance of improvement when the child is cursed with two grannies and three or four aunts, for, as Dr. Bray says, the hereditary element tends to pass by the female line; so does the pampering. Chocolates, ice creams, "candies" galore—and allergy results, "inherited" along the female line.

Three months ago I was asked by a "vet" to see an asthmatic dog—spasmodic cough, harsh pelt, eosinophils 20 per cent., no intestinal parasites. It was dieted, given mercurials, iodide, and belladonna. In a month it was normal, with 4 per cent. of eosinophils. Two months ago a pathologist told me he was taking home some chloroform to kill an asthmatic canary. I begged him not to, but to try small regulated feeds of simple seed instead of the rich diet on which it had been fed *ad lib*. Three weeks later he told me he had not believed a cure would result, but had done as suggested. The canary got well, and has nested. I have had similar experience with other canaries and dogs, also with horses (in one pit pony the eosinophils went down from 18 per cent. to 4 per cent.); but in none of these animals was there any history of asthma or allergy, not even among "the sisters and the cousins and the aunts." Much more might be said, but it is well to remember that not only may statistics be the greatest liars, but the most impertinent ones. It is also well to remember that the increase of allergy has kept pace with increased consumption of sugar, not to mention other carbohydrates. According to Dr. J. Boyd Orr this country spends a million pounds a week on sugar; in the United States of America, which is pre-eminently the land of allergy, the consumption of sugar is about five pounds per head weekly, or more than twice ours. The "heredity" of gout has gone down with change of social customs.

Dr. Bray has done much excellent work on asthma, and was entitled to be somewhat categorical in such an address, but he seems to me to have got the heredity factor out of focus, and in the new dazzling light on allergy there is some blindness to other less obvious yet general factors that matter as much, if not more.—I am, etc.,

Glasgow, July 24th. JAMES ADAM.

Use of Quinine in Normal Labour

SIR,—I would like to add my testimony to that of Dr. W. M. Hewetson (*Journal*, July 22nd, p. 170) regarding the value of quinine administered during the last three or four weeks of pregnancy. I have been so impressed by the universally good results obtained that I feel very strongly that, whatever other treatment may be used, quinine should be given as a routine.

For the last six or seven years I have given every case 1/2 to 1 grain of quinine t.d.s. for about four weeks before the calculated date of labour. In addition, I give one capsule of radiostoleum t.d.s. for about four months. Dr. Hewetson's conclusions are exactly the same as mine—namely, a short, easy labour, very little haemorrhage, much less shock, a quick recovery, and an ideal temperature chart.

One of my earliest cases was that of a lady who had had a very protracted previous labour, but with the above treatment labour was almost painless, and so rapid that the baby was born within half an hour. When I arrived the mother was very comfortable, and presented no evidence of shock. Her first remarks to me were: "I can hardly believe that I have had a baby." The shock after the previous baby was so great that she was nervy and irritable for the best part of a year.

The results in every case will not be so fortunate, and, of course, we all know that some women have just as easy a confinement without any treatment. I have a great deal of sympathy with women in their confinements. Some have a wretched time; the shock is often very great, and complete recovery a matter of months. It is the duty of the profession to do everything in its power to help, and I feel sure that the treatment outlined would go a long way towards lowering the maternal mortality rate by lessening shock and the risk of infection.

[1] Griffith and Munro: Relative Incidence of Human and Bovine Types of Tubercle Bacilli in Human Tuberculosis in Scotland, *Journ. Path. and Bact.*, 1932, xxxv.
[2] Griffith: Types of Tubercle Bacilli in Human Bone and Joint Tuberculosis: Ibid., 1928, xxxi.
[3] Anderson and Munro: Tuberculous Hyperplasia of the Large Intestine, *Edinburgh Med. Journ.*, March, 1931.

How quinine acts I do not know, but it seems in some way to lessen the resistance of the soft parts, which is so often the cause of a delayed and protracted labour, due possibly to a special action on the peripheral nerve endings.—I am, etc.,

Birkenhead, July 24th. D. J. Gair Johnston.

Aetiology of Acute Rheumatism

Sir,—Dr. Heanley's letter (*Journal*, July 15th, p. 126) serves a very useful purpose in linking our thoughts on damp to the droplet, and redirects this discussion back to its origin in Dr. Schlesinger's paper. The latter is concerned with certain recent advances in the study of rheumatism—advances published since the Bath conference to which Dr. Aston Key refers. Most important of these advances is the rediscovery of a "lag period" of from ten to twenty-one days between an acute nasopharyngeal infection and the first signs of the rheumatic state. The clinical identification of this precursor fever is difficult except in institutions and small communities permitting local epidemiological study, yet the literature on the subject includes the description of many epidemics of acute rheumatism, producing altogether hundreds of cases in which the basic wave of precursor fever has been observed. In these waves the primary nasopharyngitis is obviously by droplet spread, and although the infection may enter by other portals the nasopharynx is the usual route. In a few waves the nasopharyngeal flora has been investigated, and various strains of haemolytic streptococci have been found in epidemic prevalence. Of those persons attacked by the precursor infection only a small percentage suffer rheumatism, and these are susceptibles showing a peculiar tissue reaction to streptococci.

As Dr. Schlesinger suggests, the hypothesis that acute rheumatism is an allergic response to infection by certain streptococci is well founded, but still lacks complete elucidation. It is of little value in practice. On the other hand, the recognition of a primary acute and transitory nasopharyngeal disease—distinct from the chronic throat—is of immediate value, and can be applied to the prophylaxis and treatment of the rheumatic state.

The droplet is the key to the situation, and when we consider droplets we must also think of dew-point, humidity, temperature, vapour pressure, condensation nuclei and dust, and other terms of pure physics governing the existence, passage, and range of spread of droplets. *A priori* these are also terms governing the geographical and seasonal distribution of rheumatic fever and other droplet-borne infections, the type of disease encountered at a given place at a given time depending on local epidemic prevalences. Rheumatism is liable to occur in sensitive persons brought into contact with a widespread streptococcal parasitism. Yet, given prepared soil and special seed, the crop will still depend on the sowing.—I am, etc.,

Stratton on the Fosse, July 27th. W. H. Bradley.

Arthritis and Allied Conditions

Sir,—I have read with interest in the *Journal* of June 17th the British Medical Association committee's report on arthritis and would like to take the liberty of pointing out an erroneous statement under heading IV—namely, that the climate of Egypt is dry. Unfortunately, many practitioners and the laity in the United Kingdom believe this to be a concrete fact.

The average rainfall in Cairo is about two to three inches a year; in the provinces of Upper Egypt it is less, and in the Delta slightly higher. The rainfall can be excluded as a source of humidity, but throughout the Nile Valley there is continuous evaporation of moisture from the richly irrigated lands all the year round, and for three months of the summer most of the fertile valley of Upper Egypt is submerged by flood waters, which render even the little villages and towns of the Upper Nile damp and unhealthy. Some towns are low-lying, and in winter I have seen many damp dwellings. The towns on the Mediterranean and Suez Canal are humid. The ideal climate is on the edge of the desert, where the air is dry and the summer nights are cool—for example, Mena, glorified by the Pyramids and the Sphinx; Heliopolis, a suburb of Cairo; and Helouan, which is world-famous for its medicinal baths.

The position I have held in Egypt for the past six years has taken me all over the country, and I have lived in all the large towns and frequently visited many of the small villages. During this period I have met with innumerable cases among Egyptian girls and women of muscle and tendon pains and swollen joints, especially the ankles, without any temperature, and in the absence of evidence of dental caries or of a catarrhal diathesis. The majority lead sedentary lives and have long hours of study or teaching, with bad home conditions; and they all have anaemia. Most of these patients give a history of constipation with flatulence, and in some cases of menstrual irregularities, very often with dysmenorrhoea. I can only recollect one case, that of a woman of 40, in which, after repeated attacks of painful and swollen joints, definite arthritic changes developed. The pain and swellings disappear after a few days or weeks without treatment other than irregular doses of sodium sulphate and rest from duties.

These cases are also numerous among the upper classes of the country, who lead sedentary lives and live well, and among the English and European residents, who in many cases play games vigorously in the sun and take no precautionary measures against the sudden fall of temperature after sundown, and a large percentage of whom are starved of vitamins. Fresh vegetable salads, raw fruit, and pasteurized milk and cream are excluded from their diet in fear of dysentery and other intestinal infections. Rheumatic fever is relatively common among native children and young adults.

I would like to mention here that many English and Continental doctors advise their tuberculous and cardiac patients a long sojourn in Egypt. In my opinion the climate is a death snare for such cases. Instead of building up resistance these patients lose it, and especially those with tuberculosis.—I am, etc.,

Cairo, June 27th. Mavis Grant Zane.

Sir,—Whatever may be the ultimate verdict on the Arthritis Committee's report, which appeared in your issue of June 17th, I am one who will always value it for several reasons. Confronted as the committee was with the stupendous difficulty to supply something that would satisfy a critical audience, every member of which it knew was waiting for information, surely one's thanks are due for the work this entailed. And the more so when we realize that, besides providing us with a handy reference on all that is known and unknown on the causes and treatment of arthritis, it is stamped with a practicality of utterance that may go far to unravelling a tangled skein in time. But is complete silence our only means of expressing satisfaction, complimentary though that is at times?

Is it nothing to be supplied with a simplified nomenclature founded on clinical types, designed on purpose to relieve us of that difficulty we have had in deciding what precise pathological condition was present in most

of the cases we have met with in the past? And is not a burden lifted by a ruling which seems to suggest that more advantage may come from early treatment than from the time we used to spend in trying to refine our diagnosis in a disease that is allowed, by the committee itself, to be little understood and shrouded in mystery still?

Again, to those who by force of circumstances have been driven to think that most cases of arthritis may have a toxic base, is it not pleasing to find the report now stressing the infective theory of the disease so strongly—so energetically, indeed, that it seems to call on everyone so minded to test out disinfectants new and old? Here I would like to say what pleasure it has given me to find that a systemic disinfecting method I introduced for arthritis some nine years ago has not been included among treatments thought of doubtful value.—I am, etc.,

London, July 20th. HERBERT W. NOTT, M.R.C.S., L.R.C.P.

Prophylaxis of Malaria

SIR,—We are much interested to see Dr. A. L. Hoops's paper in your issue of June 10th (p. 993) describing his satisfaction in Malacca with atebrin (Bayer) for malaria. Being ourselves the introducers of the valuable remedy to this territory, we should like to say that in our experience there is never any need to reinforce the action of atebrin with injections of quinine. In this country, with its blackwater record, not only should we never care to do so, but in urgent situations we have employed the 0.1 gram tablets of atebrin, as any other hypodermic tablets, crushing them with the piston in a sterile syringe and, after solution, injecting, without any but beneficial results. We are surprised that Dr. Hoops can obtain fifteen of the tablets in Malaya for 75 cents. (1s. 9d.). We ourselves have not been able to obtain the same, landed even at Bulawayo, for less than 5s. 3d.—We are, etc.,

Northern Rhodesian Clinical Laboratory, Broken Hill, July 7th. C. VOIGT, E. MARY VOIGT.

Psychology and the Curriculum

SIR,—Before we are finally committed to a further expansion of a curriculum that already exceeds the limit of intelligent assimilation, would it not be well for us to sit back and consider whether we wish our sons to be wise physicians or examination athletes? If a referendum were feasible about this matter in which the whole body of our profession voiced its considered view I doubt if 1 per cent. would vote in favour of the quantitative view of medical education which is at present held to be essential. The tree of medical knowledge has developed many branches, and each tends to become jealous of its distinctive claim to prestige. Thus vested interests are formed which have to be conciliated with so many hours of the student's time in the form of lectures, demonstrations, examination questions, etc.

Now medical psychology has grown powerful enough to assert its claim for academic consideration, and bids fair to compete with the older members of the medical family in exacting its full portion of the student's time, and, presumably, interest. Does the profession as a whole realize that behind this last claim upon the overburdened student's time there is a determined attempt to graft the methods and teaching of Freud upon the tree of British medicine? Psychology is a vast subject, and infinitely complex; hence its apparent simplification by the easy Freudian formulae is an inviting compromise. Until medical psychology has been able to throw off this Freudian spell it would be disastrous, in my opinion, to bring so controversial a branch of medicine into the curriculum at all.

For the present I believe it would be wiser and safer to leave the student absolutely free to acquire his psychological standpoint in the open seminar method. If at every teaching hospital there was instituted a psychological seminar in which a skilled practical psychologist gave demonstrations of case material, and made it his special aim to answer questions and discuss actual clinical problems from the psychological standpoint, I believe the interest of the student would be kindled, instead of being killed by a surfeit, and at the same time he would be free to realize that the way of qualitative understanding is more valuable for the physician's art than quantitative information.

I trust, Sir, that you will allow this matter to be ventilated in your columns, as I am confident that the profession is unaware of the dangers involved in the contemplated extension of the curriculum.—I am, etc.,

London, N.W.1, July 27th. H. GODWIN BAYNES.

"Nerve Energy"

SIR,—Without sharing Professor Burridge's dogmatism (*Journal*, July 22nd, p. 172), and without presuming to know all that was in Professor Howell's mind when he wrote the passage I quoted in my letter on "Nerve Energy" (June 10th), I venture to assert that Professor Howell was *not* thinking of the nerve-muscle preparation when he used the words in question (*Text-Book of Physiology*, ninth edition, Saunders, 1924, p. 134)—the context proves this. The section just before the one quoted has to do with the internal structure of the nerve cell *in situ*, and with the conduction of impulses through it; and the section which follows deals with the histology and biochemistry of fatigue of nerve centres—topics which do not arise out of a consideration of the isolated nerve-muscle preparation.

Professor Burridge ascribes to Professor Howell and to "the majority of physiologists" (among whom, I suppose, I am included) views about the behaviour of the cells of nerve centres which, I submit, are nothing short of a travesty of what we do in fact believe. It is dangerous to generalize about what the majority do or do not hold, but our leaders in this field—Sir Charles Sherrington and Professor Adrian, to name only two—have during the last few years shed a very great deal of light on neural and neuro-muscular rhythms.

As for myself, if there is one thing more than another which has interested me ever since 1890 it is spontaneous or inherent neural rhythms and protoplasmic rhythmicality in general. I have written of neural rhythms in my three books on "Nerves"; and in the work, *The Rhythms of Life and Other Essays in Science* (1929), Professor Burridge will find the whole of the first chapter devoted to a discussion (in popular but, I hope, not inaccurate language) of vital rhythms. I do not believe it true that the majority of physiologists have lost sight of the existence of the intrinsic rhythmicality of nerve centres, and that they regard these as inert until a stimulus rouses them to activity. The whole tendency of modern neurology is to recognize and render both visible and *audible* the precise rhythms of nerve impulses.

Both nerve energy and its rhythmic expressions I regard as realities, and in my letter of June 10th I was pleading for as much recognition of these things by the teachers in physiology as has already been accorded them by clinicians and psychiatrists.—I am, etc.,

Chiswick, July 21st. D. FRASER-HARRIS.

Obituary

E. COLLIER GREEN, O.B.E., M.R.C.S.

Senior Ophthalmic Surgeon, Derbyshire Royal Infirmary

We regret to announce that Mr. E. Collier Green, senior ophthalmic surgeon to the Derbyshire Royal Infirmary, died on July 30th, after a long illness, in the institution to which he had devoted so much time and thought.

Edwin Collier Green was born on September 30th, 1858, near Rawdon in Yorkshire, his father being the Rev. S. G. Green, D.D. After leaving school he studied architecture for a short time, but eventually entered St. Thomas's Hospital, and obtained the M.R.C.S. diploma in 1881. In July, 1882, he was appointed assistant to the house-surgeon at the Derbyshire Royal Infirmary, the minutes recording that the post was tenable for six months ; and thus commenced a career, lasting over half a century, which has done more than that of any other individual to mould the destinies and add to the prestige of that hospital. He served as house-surgeon until 1887. He then went to Moorfields, now the Royal London Ophthalmic Hospital, to make a special study of diseases of the eye, and in 1888, when the governors of the Infirmary decided to open an ophthalmic department, Mr. Collier Green was chosen as the first honorary ophthalmic surgeon. He established and maintained an up-to-date clinic, gaining the confidence and respect of the profession in the district in this and also in his private consulting practice, being actively engaged in both until his last illness. For a number of years he held the post of honorary ophthalmic surgeon to the Burton-on-Trent Infirmary, and gave his services to many other institutions in Derby, including the Children's Hospital, the Railway Servants Orphanage, and the Royal Institution for the Deaf and Dumb. He was one of the first ophthalmic referees under the Workmen's Compensation Act. During the war he was assistant county director of the Southern Area of the British Red Cross Hospitals, and in 1920, in recognition of his services, he was made O.B.E. He became county controller of Voluntary Aid Detachments.

He was the first secretary of the Derby Medical Society, in which he took an active interest ; and in his year of office as president used his skill as a photographer to show a series of photomicrographs, at a time when they were something of a novelty. He filled the office of president of the Derby Photographic Society, and his knowledge of photography, the microscope, and the lantern was put to great practical use in professional work and scientific meetings. The confidence of the profession in the district was shown by their action in persuading him to remain chairman of the Derbyshire Division of the British Medical Association for two years in succession, in that exceptional time when the National Health Insurance Act was passing into law. At the Annual Meeting of the Association in 1905 he was vice-president of the Section of Ophthalmology.

With the busy life of a consultant in ophthalmology, and unfailing regularity of attendance at his hospital clinics, Mr. Collier Green found time for an amount of administrative hospital work the value of which cannot be overestimated. His knowledge of hospital architecture was wide and detailed, and the board of management came to rely on him for advice, both as to the efficiency and to the economy of any new building or structural alterations. His long term as chairman of the house committee is a tribute to its trust in him. Perhaps, above all, his colleagues on the honorary medical staff would like to say that their own unity, and the harmonious understanding which has existed at all times between themselves and the board of management, is largely to be attributed to Mr. Green's wise leadership. The whole profession locally will feel his loss. His advice was sought in all sorts of medical problems, private and public, and always given with kindly wisdom. To some he seemed a link with the past, but to all an active leader, always interested in new developments and using his influence to provide the latest scientific equipments entailed by the progress of medical science. His wife and only daughter survive him. The former was the eldest daughter of the late W. G. Curgenven, for many years honorary surgeon to the Derbyshire Royal Infirmary. His long association with St. John's Church, Derby, and many other private activities, have made him one who, though without public office, was a leading citizen as well as a leader of the profession.

H. B.

JAMES CARMICHAEL, M.D., F.R.C.P.Ed.

Consulting Physician, Royal Hospital for Sick Children, Edinburgh

The death took place on July 24th, at his residence in Northumberland Street, of Dr. James Carmichael, one of the oldest and best-known practitioners in the city of Edinburgh. Dr. Carmichael was born at Edinburgh in 1843, his father having been also a practitioner of medicine. On the completion of his course in medicine he graduated M.D. in 1864, and he was one of the last survivors of those to whom this degree was given immediately upon completion of a medical course. After graduation he became resident physician with Professor Sanders in the Royal Infirmary of Edinburgh, and after a tour of study on the Continent he settled in practice at Burntisland, where he remained for some six years. Returning to Edinburgh in 1873, he devoted his attention specially to diseases of children, and he was one of the pioneer teachers in this department. He early became connected with the Royal Hospital for Sick Children at Edinburgh, where he was successively assistant physician, physician, and consulting physician.

Dr. Carmichael was the author of *A Manual of Diseases in Children*, published in 1893, and he contributed numerous articles to current medical literature, most of them dealing with disorders of childhood. For many years he was chairman of the Society for the Prevention of Cruelty to Children and a member of the League of Pity Committee, and he took a great deal of practical interest in these bodies, and devoted much time to increasing their efficiency. Although he conducted a wide and successful practice he occupied himself much in social events connected with the medical profession, and was a keen member of the Royal Company of Archers, in which he twice won the King's Prize. He was also an enthusiastic golfer, and for many years was a well-known figure on the links at Musselburgh, where he played every Wednesday in a medical foursome. He is survived by a widow, a son who is also a specialist in children's diseases, and by two daughters, while another son, who was a well-known Edinburgh surgeon, predeceased him some years ago.

THE LATE LIEUT.-COLONEL BROWN, I.M.S.

Sir Leonard Rogers writes: I should like to pay a brief tribute to the memory of my old friend Edwin Harold Brown, whom I knew well for two decades in Calcutta, and whose career was fully described in the *British Medical Journal* of July 22nd. In addition to holding high medical and surgical qualifications and occupying important civil surgencies in Bengal, Colonel Brown was well versed in indigenous drugs and was a high authority on Indian diets, so essential to success in practice among Indians. These qualities made him peculiarly well fitted for the physicianship and professorship of materia medica at the Calcutta Medical College, and it was much to the surprise of his many medical friends that he was passed over for

this post, with the result that he resigned from the service and very soon took the foremost place as a consultant in Calcutta, to the benefit especially of his numerous Indian patients, but to the serious loss of the I.M.S., with whose members, however, his genial personality and generous nature enabled him to maintain the friendliest relations. His decease is a serious loss to medicine in India, a country he understood and loved and to whose service he gave his best unstintingly.

Dr. John Mathieson Macmillan, who died recently, had been for many years chief dental surgeon to the Great Western Railway Medical Fund Society at Swindon. After studying medicine in Glasgow he obtained the L.D.S. in 1892, and the L.R.C.P. and S.Ed. and the L.R.F.P.S.Glas. diplomas in the following year. He then began practice as a dental surgeon in Glasgow, and in 1905 was appointed dean and lecturer in dental surgery at the Glasgow Dental Hospital and School; he was also examiner in dental surgery for the Royal Faculty of Physicians and Surgeons. At the Annual Meeting of the British Medical Association in 1910 he was vice-president of the Section of Odontology. In that year, owing to impaired health, he decided to take up fruit farming in British Columbia, but returned in 1915 to join the R.A.M.C., and acted as inspector of dental services to the Northern Command, with the rank of major. On returning to civil life he started practice at Wolverhampton, but after the death of his son, while a student at Guy's Hospital, he decided to devote the rest of his life to the service of the industrial classes, and accepted the post at Swindon.

MEDICAL BRANCHES OF THE SERVICES

REPORT OF WARREN FISHER COMMITTEE

The report of the committee appointed by the Prime Minister rather more than two years ago to inquire into the dearth of medical officers in the three Medical Services[1] has now been presented to Parliament. As announced elsewhere (p. 245) the matter will receive early consideration by the Naval and Military Committee of the British Medical Association. We print below a summary of the contents of the report.

Shortage of Recruits

The recruiting of doctors for the Defence Services has been unsatisfactory ever since the war, and the medical branches have been carrying on under great difficulties, with the assistance of retired officers and other medical men engaged on short term contracts. These could not be employed over-seas, and the regular officers have therefore had much more than their fair share of oversea service, and have also been deprived of the opportunities ordinarily given to them of taking specialist and other courses of advanced study. Improvements in the rates of pay of the Medical Services introduced on the recommendation of a committee which sat in 1925 and 1926 had no permanent effect in encouraging recruiting.

Constitution of Committee

The Government accordingly decided in 1931 to set up an authoritative committee under the chairmanship of Sir Warren Fisher, Permanent Secretary to the Treasury, to ascertain the causes of the shortage of recruits, and to propose a remedy. It included the Permanent Under-Secretaries of State for War and India, the Permanent Secretaries of the Admiralty and the Air Ministry, an Assistant Secretary at the Treasury, the heads of the three Medical Services—Surgeon Vice-Admiral Sir Arthur Gaskell, Lieut.-General Sir Harold Fawcus, and Air Vice-Marshal J. McIntyre; two representatives of the civil profession—Professor George E. Gask of St. Bartholomew's Hospital, and Dr. A. M. H. Gray, Dean of University College Hospital Medical School; and Mr. Lindsay Scott of the Air Ministry as secretary.

The financial crisis of the autumn of 1931 prevented the committee making progress with its problem: while the effect of the abandonment of the gold standard was uncertain no useful conclusions could be reached as to the financial attractions that the Services needed to offer to compete effectively with civil medical employments.

Representations of the B.M.A.

Before the committee was appointed representations in favour of substantial increases in the pay and pensions of the Medical Services had been made to the Admiralty, War Office, and Air Ministry by the British Medical Association, and had been published by the Association in the *British Medical Journal* of April 25th, 1931. The committee considered these representations, and also received a deputation from the Association, headed by Sir Henry Brackenbury.

Medical Students' Evidence

The Warren Fisher Committee was already aware from the minutes of the committee which sat in 1925 and 1926 of the views on its problem of the deans of the principal medical schools throughout the country. It appeared, however, that the most direct way of finding out the causes of the failure of recruiting was to ask those to whom recruiting appeals were actually made, and the committee therefore secured as witnesses two senior students from St. Thomas's, two from Guy's, two from University College, and two from St. Bartholomew's. This method of approach to the problem proved entirely successful, and the candid evidence of these young men gave the committee a clear and lively picture of the reaction of typical elements in the schools to the possibility of a career in the Services.

Alleged Lack of Professional Opportunity

From the evidence it received the committee concluded that, while an important deterrent to recruiting was the lack of economic attraction of the career, a deterrent of equal importance was the strongly held belief that the career offers no adequate opportunity to a keen doctor to practise his profession. The effect upon recruiting of such an impression being obviously disastrous, the committee considered it of the first importance to correct the impression—and to correct it authoritatively—so far as it was proved to be wrong, and, so far as it was found to be right, to remove to the greatest degree possible the professional disabilities found to exist.

The committee accordingly asked Professor Gask and Dr. Gray to make an independent investigation into the opportunities for professional work provided by the Services as at present organized. This investigation, which extended to all types of posts in the three Services, proved that the belief that the Services provide no adequate professional opportunity was to a considerable degree erroneous. The conclusions which Professor Gask and Dr. Gray reached were that the opportunity of specialist work, though limited, was attractive, and that appointment to a major hospital provided opportunity of a kind only available to a limited number of general practitioners in civil life. On the other hand, they found that all the Services included, though to different degrees, posts which provided professional opportunity inferior, and sometimes much inferior, to that ordinarily expected in civil life. In that respect the Services were at a recruiting disadvantage with competing employments, the degree of the disadvantage depending on the proportion of an officer's total service that was spent in these posts. Further, the Services were at a disadvantage in that promotion to higher rank often involved the abandonment of professional for administrative duties.

Economic Disadvantages

On the economic side the committee found that the career in the Services suffered from certain disadvantages. It was too short, and officers retired relatively young from the

[1] Cmd. 4394. London: H.M. Stationery Office. 1933. (9d.)

middle ranks could not educate their families satisfactorily on their pensions and could not easily obtain good civil employment. Moreover, promotion was too slow, and too few officers could reach the higher ranks. The amount of oversea service, or service afloat, and the frequency of moves were also disadvantages.

On the other hand, the investigations undertaken by the committee into the economic advantages offered by the principal types of competing employments, the Colonial Services, the Local Government Services, and general practice, did not lead it to conclude that these were greater than those of a Service career. As regards general practice, it expresses the opinion that, while it offers much greater prizes, the earnings of the average practitioner are not such as to make the career more attractive economically than that in the Services, and are less than was commonly supposed. The committee points out, however, that the different types of employment appeal to different types of men, and it thinks that life in the Defence Services attracts only a limited number of young doctors.

General Conclusion and Proposals

The committee's broad conclusion is that the Service career must be improved materially, both in the opportunity it provides for professional work and in the economic advantages it offers. The committee finds the means of effecting this dual improvement in a reorganization of the Services, and it is satisfied that such a reorganization can be effected without increase in their normal cost. It points out that the provision of additional money for the Medical Services from within the present total of Defence Votes means a reduction in the fighting strength of the Forces, and it is definitely unwilling to recommend any increased charge on the Exchequer.

Reorganization Recommended.—The committee proposes to reorganize the Services on the basis of a reduced total establishment of officers by the elimination of posts which provide insufficient professional work. Professional opportunity will further be improved under the new organization by the fact that all officers who make the Services their life career will be allowed to specialize, if qualified to do so; that specialists will be enabled to spend a considerable part of their career in practising their specialty; and that the opportunity to rise to the higher ranks without abandoning professional for administrative work will be largely increased.

Economic Improvements.—On the economic side, the reorganization will give earlier promotion, a larger proportion of officers reaching the higher ranks, a larger average pension, and a longer career. Thus in the Army the rank of lieut.-colonel will normally be reached about the age of 42, instead of about 48, as under the present organization, and colonel about 50, instead of about 53. Moreover, a large majority of officers will, in future, be enabled to reach the rank of colonel, and thus to retire with the larger pension of that rank. The ages of compulsory retirement are made the same in all three Services, and are such that no officer will be retired before 53, that a large majority will serve to 57, and a minority till 60.

Financial Value of Career.—Except for certain limited adjustments the committee recommends no alterations in the pay scales, which it considers to be well designed to give a satisfactory financial career, provided the length of the career and the prospects of promotion are improved as the reorganization which it proposes allows them to be. Quoting the case of the revised Army career, which it recommends as the standard for all three Services, it shows that the increase in emoluments resulting from its proposals amounts to an average of nearly £150 a year throughout the period of an officer's career between the ages of 35 and 50, when his family responsibilities are greatest. In the early and in the later years of the career the improvement, as compared with the emoluments of the present career, amounts to more than £50 a year.

Limited Number of Permanent Officers.—The committee emphasizes the duty laid upon the employing Departments not to enter more officers with the prospects of a life career than is justified by the number of posts of higher responsibility available for them later to fill. It considers that the present higher establishment is unduly restricted, and that the number of posts involving higher responsibilities justifies a substantial increase in the number of officers employed in the ranks of surgeon commander and surgeon captain, lieutenant-colonel and colonel, wing commander and group captain. Even, however, when this increase in the higher establishment is made, and when the reduction it recommends in the total establishment is effected, the proportion of senior to junior posts is too small to allow of all officers being entered for a life career. The effect of doing so would be to bring the Services back to their present condition, in which promotion occurs too late, too few officers get it, and too many retire from relatively low ranks and with correspondingly small pensions.

Short Service Entry.—Since the obligation to provide a career of adequate length and with adequate prospects of promotion appears to the committee to be an overriding one, it necessarily follows that some officers must be carried who will not be given a life career. It considers that the best way to carry a margin of non-permanent officers is to enter all officers in the first instance for short service. From these short service officers will be chosen each year the numbers to be retained for life careers with the prospects of promotion already mentioned. Those short service officers who do not desire, or are not chosen for, permanent retention will be transferred to the Reserves and given a gratuity large enough to assist them largely in buying a practice. The normal short service period in all three Services will be five years, on completing which a gratuity of £1,000 will be paid. In the Navy and Air Force, however, officers will be entered in the first instance for only three years and, if they retire after that period and do not serve on for five years, they will get a gratuity of £400.

Improved Professional Opportunity.—The committee is satisfied that the reorganization it proposes will place the Service career on a favourable basis as compared with competing civil employments in the quality and amount of the interesting professional work, both of a specialist and of a general character, which it offers. Coupled with the economic improvements which the reorganization will effect, it believes that the Services will be in a strong position to attract recruits of excellent quality from the medical schools.

Service Over-seas and Afloat.—In the reorganized Services a large proportion of the posts over-seas and, in the Navy, afloat, will be filled by junior officers to whom the opportunity to serve abroad or in a sea-going ship will be an attraction. The amount of such service falling on the officer of over six years' service will be reduced to modest proportions.

Mobilization.—The reserve provided by officers who are not retained for life careers will much more than make good the reduction recommended in the establishment of regular officers, and the committee therefore considers that the position of the Services on mobilization will be strengthened by the reorganization proposed.

Medical Scholarships.—Hitherto, the committee points out, officers and men have been able to put their sons into the combatant branches of the Services at favourable financial terms, but no assistance has been available as regards the medical branches, though the cost of providing a medical education is beyond the reach of many Service parents. It therefore recommends the creation at the expense of public funds of a small number of scholarships open to sons of members of the Forces who wish to enter the Medical Services. These scholarships will be administered for the Departments by the Lord Kitchener National Memorial Fund, and the same standards will be set for acceptance, both as regards ability and as regards need, as the Fund sets for the award of Kitchener Scholarships.

Effect on Existing Officers.—The committee wishes to make it clear that the improvements which its proposals will effect in the career open to future entrants cannot automatically apply to existing officers. The application of the proposals to these must be examined by the Departments, and the increased opportunities of promotion equitably distributed so as gradually to bring the ages of promotion down to the earlier ages recommended.

Medical Notes in Parliament

[From our Parliamentary Correspondent]

Before Parliament rose for the Summer Recess on July 28th, the Royal Assent was given in the House of Lords to the Slaughter of Animals Act, the Local Government and other Officers Superannuation (Temporary Provisions) Act, the Manchester Royal Infirmary Act, the Middlesbrough Corporation Act, and the Samaritan Free Hospital for Women Act.

On July 25th the House of Lords in committee made further amendments to the Local Government and other Officers Superannuation (Temporary Provisions) Bill, read the Bill a third time, and returned it to the Commons, who accepted the amendments on July 26th. On the motion of the Earl of Kinnoull, the Lords amended Clause 1 to authorize that for computations under the Bill a reduction in remuneration could be disregarded if it took place between September 1st, 1931, and July 1st, 1932. The latter date was substituted for April 1st, with the consent of the Government. On Clause 5 (Interpretation) the Government accepted an amendment declaring "reduction in relation to remuneration includes a reduction by way of deduction or refund." Another amendment deleted the provision that in Scotland the limiting date should be May 16th, 1932. As stated above the Bill received the Royal Assent on July 28th.

Scarlet Fever in Scotland

Replying on July 26th to the Duchess of Atholl, Sir G. Collins said there were 13,458 cases of scarlet fever notified in Scotland in the first two quarters of 1932, and 13,317 in the first two quarters of 1933. The corresponding figures for 1930 and 1931 were 6,914 and 7,671 respectively. He was concerned at the continued prevalence of the disease. As a first step in the consideration of what further preventive or other measures might be taken to reduce the incidence, the Chief Medical Officer of the Department of Health for Scotland had arranged to confer at an early date with the medical officers of health of the areas most seriously affected.

Compensation for Road Accidents

The Road Traffic (Compensation for Accidents) Bill was before the House of Lords in committee on July 25th. Lord Halsbury moved to insert in Clause 1, Subsection 1, "provided no damages shall be recoverable if the owner proves to the satisfaction of the court that the damages were not caused by any wrongful act of the owner."

Lord Danesfort, in resisting the amendment, quoted the judgement of the House of Lords in the case of Rylands *v.* Fletcher, that "where a person brings upon his land anything which would not naturally come upon it and which is in itself dangerous and may become mischievous if not kept in control, though in doing so he may act without personal wilfulness or negligence, he will be liable in damage for any mischief thereby occasioned." That principle might be conclusively applied to the motor cars which caused 6,000 deaths and 200,000 injuries in one year.

Lord Plymouth said Lord Halsbury's amendment would alter the whole purpose of the Bill, which contained proposals formulated by a Select Committee after very careful examination. The Government had come to no final decision on the principles of the Bill. He suggested that the Bill should be passed in its present form.

Lord Halsbury's amendment was defeated by 41 to 5.

An amendment from Lord Elibank was accepted, which exempted an owner from liability for injuries caused by his car while unlawfully in the possession of some other person.

Lord Halsbury moved to omit Clause 3, dealing with the amendment of Section 36 of the Road Traffic Act, 1930, with respect to payments to hospitals. He said this was not relevant to the Bill. Lord Moynihan had covered it in another Bill, drawn up in conjunction with the British Medical Association.

Lord Danesfort said that Bill was solely for emergency treatment in hospitals and by doctors. This clause was for in-patients in really serious cases. Lord Elibank said Lord Moynihan was a party to Clause 3 being included. Lord Luke said this clause was prepared by the British Hospitals Association and the King Edward's Hospital Fund, and sent back to the House in this amended Bill. The number of in-patients and out-patients using the hospitals in 1931 as a result of motor accidents was about 60,000. The total cost to the hospitals was estimated at £230,000. It was suggested that £25 should be the maximum charge the hospital should make, and that was now to be increased to £50. That average of about £4 a case in 1931 did not suggest there would be many £25 or £50 cases. Amendments relating to the conduct of solicitors and the application of the Bill to Scotland were discussed, and the committee stage ended.

Production of Clean Milk

In the House of Commons on July 27th, Dr. Walter Elliot moved that the House approve the scheme under the Agricultural Marketing Acts, 1931 and 1933, for regulating the marketing of milk. He said the scheme contained special provisions with regard to certified milk and grade A (T.T.) milk producers, a small body that, for four or five years, had rendered conspicuous service in the interests of clean milk throughout the country. The special case of these producers was discussed with the promoters, and they gave an assurance that they would undertake to move the Board, when constituted, to except the sales of certified and Grade A and T.T. milks sold under those designations under Part VI of the scheme, and would undertake not to withdraw the exemption without the consent of the Government, unless a majority of the persons producing those milks desired that the exemption should be withdrawn. He would be prepared to consider any representations which the board might make for the revocation of this exemption, should the market increase or should the exemption appear contrary to the interests of other registered producers.

The House approved the scheme.

Industrial Hygiene

On July 28th, on the motion that the House of Commons adjourn, Mr. Rhys Davies discussed the report for 1932 of the Chief Inspector of Factories and Workshops. He said the Home Office had hardly commenced to establish a health and medical department covering factories and workshops. The result was that the improvement in the health of the community as a whole was more rapid than the improvement in the welfare of those employed in factories and workshops. Accidents due to transmission machinery showed an increase. The inspectorate was not adequate, and vacancies in it had not yet been filled. The Home Secretary should ask the Medical Research Department of the Home Office to cause inquiries to be made into the effect of the six-loom system on the health of weavers. Statistics of fatal and non-fatal accidents should also show the number of people employed in that section of industry. The figures for the chemicals, paints, colour and varnish, and glue-making sections of industry were ominous. So were those relating to docks and building operations. Regulations respecting those operations should be brought up to date. An increase of fourteen cases of lead poisoning was attributed to shipbreaking, and some means could have been found to prevent it arising. The passing of the Lead Paint Act had reduced the cases of lead poisoning in painting from sixty-four in 1931 to forty-three in 1932. Figures for industrial cancer were distressing. There were 131 cases with forty-four deaths reported during the year from ulceration of the skin within the ambit of industrial cancer; thirty-three cases with one death from pitch; thirty-seven cases with eighteen deaths from tar; one from paraffin; and sixty cases with thirty-five deaths from oil. Of these sixty cases from oil, fifty-seven occurred among cotton mule-spinners. Had any progress been made in preventing this disease? Why should there have been ten fatal cases at one nickel works? There was cancer among dye-workers in Huddersfield. In the year 1932 there were 323 deaths from asbestosis or silicosis, with or without tuberculosis. It behoved the Home Office to be more alert. Some diseases caused

by noise and vibration had been scheduled in Germany for workmen's compensation. Had the Home Secretary in mind the effects of the use of hand drills with their terrible vibration? He saw nothing in the report to enlighten him about nystagmus. Mr. R. T. EVANS spoke of silicosis as affecting miners, and Mr. MCENTEE of the effect which the escape of petrol fumes into closed vans had on the health of the boys or others compelled to be in these vans for long periods. He did not know if the effect of these fumes on pedestrians was one for the Home Office. Mr. E. WILLIAMS said the Silicosis Order should be amended to cover claims for miners driving headings and drifts through hard ground. Anthracosis, which pertained almost entirely to the anthracite coalfields, was not even scheduled. The anthracite dust, being almost as hard as stone, hardened in the lungs till the man could scarcely breathe. He thought it preposterous that to be certified for nystagmus a claimant must pay a fee of 5s.

Sir JOHN GILMOUR replied. He said the "safety first" movement was reducing accidents. He did not think there was any serious change in the number of accidents due to transmission machinery. New building regulations were made less than two years ago, and a new code for docks had been issued in draft. The six-loom system was being watched, and any increase in accidents would come to light. Prevention of lead poisoning in shipbreaking was difficult. Removal of the fumes by exhaust ventilation had not been found practicable. There was a welcome improvement in the paint industry. The anthrax disinfectant station had been kept in operation, and there was a scheme for adding to the materials to be disinfected. Research had been and was being made into skin diseases and skin cancer. Pending further discoveries early detection and treatment was most important. He hoped workers would realize the necessity of reporting sooner. Examination of nickel workers continued, but no more cases of cancer of the nose were reported. In cancer of the bladder among dye-workers the connexion between the disease and the occupation had not been established. Research continued. An increasing number of firms had adopted the non-silicosis abrasive methods. The Industrial Health Research Board was investigating the results of noises and vibration; not all modern machinery was noisy. Nystagmus and its compensation were problems for the Mines Department.

Pensions Medical Services.—Major TRYON told Mr. Salt on July 27th that, although out of 4,332 applications for pensions made last year by ex-service men only 250 were granted, there were also about 100 men for whom surgical or medical treatment was provided and found to be all that was required. The number of late applications was decreasing, and the large majority of those now being received were made in respect of ailments or diseases common to the civilian population, which were now claimed for the first time to be due to war service.

Sanitation of Holiday Camps.—Replying on July 20th to Colonel Sandeman Allen, Sir HILTON YOUNG said there were powers in the existing law for dealing with the sanitation of permanent and semi-permanent holiday camps, but that he was considering, in consultation with the Association of Local Authorities, whether further powers were required. On the same date Sir JOHN GILMOUR said existing laws and by-laws gave local authorities power to deal with offences against public order and decency at these camps. No further general legislation was needed.

Milk for Scottish School Children.—Replying on July 27th to Sir A. Sinclair, Sir G. COLLINS said two education authorities in Scotland—Selkirk and West Lothian—had adopted schemes for the supply of milk to school children under the provisions of the Education (Scotland) Act, 1930. The scheme in Selkirk provided for one pint of certified milk per day for approximately forty-eight children, the cost being borne by the education authority. The West Lothian scheme, which provided milk for about 150 children at the cost of the authority, had now been discontinued. Schemes for the provision of milk apart from the 1930 Act were in operation in Edinburgh and Aberdeen. In Edinburgh one-third of a pint of Grade A (T.T.) milk per day was supplied to approximately 6,000 school children. Except in the case of 350 children, the cost of one penny per day was borne by the parents. In Aberdeen approximately one-third of a pint of pasteurized or of Grade A (T.T.) milk per day was supplied to approximately 8,000 school children. The cost to the parents was one penny per day. No cost to the local authority was incurred.

Hospital Provision in Scotland.—Sir G. COLLINS, replying on July 20th to Mr. Leonard, said the number of hospitals provided by Scottish local authorities on December 31st last was as follows:

Classification	Institutions	Beds
(1) Poor Law hospitals and Poor Law institutions having sick beds	61	5,948*
(2) General hospitals	5	1,263
(3) Sanatoriums and other tuberculosis institutions	28	4,135†
(4) Maternity hospitals and homes	13	241
(5) Infectious diseases (including small-pox) hospitals	124	6,594‡
(6) Hospitals and homes for sick and ailing children under age 5	6	118

* Includes beds in mental observation wards.
† Includes 1,668 tuberculosis beds in infectious diseases hospitals.
‡ Excludes 1,668 tuberculosis beds.

Slum Clearance: The Year's Figures.—Sir HILTON YOUNG said on July 20th that during the twelve months ended June 30th last local authorities in England and Wales submitted to the Minister of Health resolutions declaring 406 areas, comprising 7,443 houses, to be clearance areas; 293 Clearance and Compulsory Purchase Orders affecting 6,910 houses were submitted for confirmation during this period, and 241 Orders affecting 5,582 houses were confirmed. In addition, 362 houses were purchased by agreement. Replying to Captain Erskine-Bolst on July 19th, the Minister said he had received from twenty-nine local authorities in Lancashire resolutions declaring 121 areas to be clearance areas under the Housing Act, 1930.

Experiments on Animals.—Sir J. GILMOUR told Mr. Groves on July 27th that the number of experiments performed upon living animals during 1932 was 589,154. The preparation of this return involved considerable labour after the individual returns from the licensees were received, and there was no avoidable delay in publication.

Notes in Brief

The use of aeroplanes for ambulance purposes in the Highlands and Islands is being considered by the Department of Health for Scotland.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on July 29th the following medical degrees were conferred:

B.M.—J. H. B. Beal, A. Carling, D. A. Jennings, I. H. Gosset.

UNIVERSITY OF LONDON

Professor H. W. Florey, M.B., B.S.Adelaide, B.A., B.Sc. Oxf., M.A., Ph.D.Camb., has been appointed to the Sir William Dunn Chair of Pathology tenable at Guy's Hospital Medical School. Since 1931 he has been Joseph Hunter Professor of Pathology in the University of Sheffield.

At the June matriculation examination 184 candidates passed in the first division and 819 in the second division; forty-five took the supplementary certificate in Latin.

The following candidates have been approved at the examinations indicated:

M.D.—*Branch I (Medicine):* K. V. Edwards, P. R. Graves, A. S. Hoseason (University Medal), A. T. L. Kingdon, Moyra I. Macnaughton-Jones, J. H. G. Mason, J. Mindline, P. McG. Moffatt, G. H. Newns, A. P. M. Page, H. E. Reburn, J. H. O. Roberts, T. S. Rodgers, E. G. Thomas, F. H. W. Tozer, J. R. Tree, J. H. Watkin, *G. P. B. Whitwell. *Branch II (Pathology):* H. A. Harris. *Branch III (Psychological Medicine):* C. E. Allen, N. G. Harris, J. R. A. Madgwick. *Branch IV (Midwifery and Diseases of Women):* Gwendolen E. Austin, Rosa E. Chamings, L. G. Housden, Beatrice M. Joly, Eileen M. King, Margaret I. Neal. *Branch VI (Tropical Medicine):* E. M. Wijerama.

ACADEMIC DIPLOMA IN MEDICAL RADIOLOGY.—*C. D. Costello, R. I. Roberts, J. E. Wilson Lee.

* Awarded mark of distinction.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At the quarterly meeting of the Council held on July 24th, with the President, Dr. J. S. Fairbairn, in the chair, the following officers were re-elected to take office at the autumn meeting of the Council: President, Dr. John Shields Fairbairn; vice-presidents, Dr. H. Russell Andrews and Sir Ewen J. Maclean; honorary treasurer, Mr. Eardley Holland; honorary secretary, Professor W. Fletcher Shaw; honorary appeal treasurer, Mr. Comyns Berkeley; honorary librarian, Mr. Arthur E. Giles; honorary assistant librarian, Mr. Frederick Roques.

Dr. W. F. T. Haultain (Edinburgh) was promoted to the Fellowship of the College, and the following were elected to the Membership:

Alexander Ailan (Manchester), Lieut.-Colonel H. C. Buckley (India), John Barnard Blaikley (London), Harold Carter (London), Robert Leslie Dodds (London), John Douglas Flew (London), Tom Ivor Hughes (London), John Stewart Henry (Montreal), Peter Joseph Kearns (Montreal), Major G. H. Mahony (India), Patricia Massey (South Africa), William George Mackay (Glasgow), Douglas A. Mitchell (Bath), Margaret Mary Nolan (India), Newell W. Philpott (Montreal), Edwin Moody Robertson (Edinburgh), Walter Salisbury (Northampton), Roy McGregor Saunders (London), Walter Netley Searle (New Zealand), George Drury Shaw (South Africa), R. L. Stevenson (New Zealand), Henry J. Thomson (Bellshill, Lanark), Beatrice Turner (London), John Ross Vant (Canada), Blake H. Watson (Canada).

Sir Kedarnath Das was elected chairman of the Indian Reference Committee in the place of Lieut.-Colonel Green-Armytage, who has returned to England.

The President formally admitted to membership Dr. Keith Duff (London) and Dr. William Smith O'Loughlin (Romford).

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the examination indicated:

FINAL PROFESSIONAL.—C. D. Campbell, F. G. Smith, M. Goldfar, R. A. F. Murdoch, W. McL. Mason, J. Selvam, R. S. Ninian, A. C. Stevenson, R. M. A. Ormston, M. Quazi, J. P. Perera, L. B. E. Seneviratne, M. Rosenberg, D. N. Schwarz, J. P. Carlile, E. M. Toloff, H. S. Cheetham, O. Springer, K. Khalil, E. T. Buell, R. Singh, P. B. Menon, E. C. D. S. Ratnaike, J. L. Roche, E. F. Dupre.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—E. V. Bevan, R. F. Fleming, T. von Haebler, L. R. Jain, J. E. Morrish, H. Owen, W. C. M. Scott, F. H. Williams.
MEDICINE.—J. L. Cope, J. B. Frumin, L. I. F. Kerridge, W. C. M. Scott.
FORENSIC MEDICINE.—N. C. Lendon, H. N. Levitt, T. Morgan, W. C. M. Scott, D. A. Smith, H. B. Thornton.
MIDWIFERY.—A. C. E. Cole, R. F. Fleming, J. Lipschitz, B. S. Minden, W. C. M. Scott, A. L. L. Silver, G. L. R. Tapsall.

The diploma of the Society has been granted to E. V. Bevan, J. L. Cope, J. B. Frumin, L. R. Jain, J. E. Morrish, H. Owen, W. C. M. Scott, and F. H. Williams.

Medical News

The Royal College of Physicians of London will be closed for cleaning from Thursday, August 3rd, to Saturday, September 16th, both days inclusive.

The annual dinner of past and present students of St. Mary's Hospital Medical School will be held at the Trocadero Restaurant on Saturday, September 30th, at 7.30 p.m.

Mr. R. Y. Paton will lecture on "Common Disabilities of the Foot and their Treatment" before the Paddington Medical Society, at the Great Western Royal Hotel, Paddington Station, on Tuesday, August 15th, at 9 p.m.

Two courses of lecture demonstrations on neurology will be held at the Medical School, National Hospital, Queen Square, W.C., from October to December, 1933, and from January to March, 1934. These will include demonstrations on anatomy, physiology, and pathology, and demonstrations on post-mortem material at 12 noon; lectures on the principles of neurology and on nervous diseases, Monday, Tuesday, Thursday, and Friday at 3.30 p.m.; demonstrations of clinical methods of examination in nervous diseases, at 5 p.m. The autumn course of lectures from October 2nd to December 1st, 1933, consists of thirty-six lectures on the principles of neurology, and the winter course of lectures and demonstrations from January 22nd to March 23rd, 1934, includes thirty-six lectures on nervous diseases. The fee for each course is £10 10s., and special arrangements will be made for those who are unable to take the whole course.

The special post-graduate course for former students of the London Hospital will be held from Wednesday, October 11th, to Saturday, October 14th, inclusive. The annual dinner will take place on Thursday, October 12th, at the Trocadero Restaurant.

The Association of Special Libraries and Information Bureaux will hold its tenth annual conference in the Wills Hall, Bristol, from September 22nd to 25th. At the opening session, with Dr. Thomas Loveday, vice-chancellor of the University, in the chair, Sir Charles Sherrington will deliver his presidential address. Full particulars of the conference may be obtained from the General Secretary, Miss E. M. R. Ditmas, M.A., 16, Russell Square, W.C.1.

Chicago during the World's Fair will welcome the largest radiological congress ever held in the United States when the four national radiological societies meet there in joint session from September 25th to 30th, under the presidency of Dr. Henry K. Pancoast of Philadelphia. Particulars may be obtained from Dr. Benjamin H. Orndoff (2561, N. Clark Street, Chicago), chairman of the executive council of the congress.

An international congress of medicine in relation to athletics will be held in Turin from September 6th to 9th, during the course of the international university games in that city. Facilities will be given for instructors and trainers to participate. Proposed communications should be forwarded in advance, and the speaker is asked to bring with him the complete text, together with a brief summary translated into French or Italian, which can be read immediately after the communication has been made, and can be distributed to the Press on the same day. The paper may be in English or in Italian. There is no fee for taking part in the congress, and railway and hotel charges will be reduced for those attending. Further particulars can be obtained from Professor Ugo Cassinis, Via dello Stadio 14, Rome.

The eightieth anniversary of the foundation of the *Münchener medizinische Wochenschrift* has been marked by the publication of a handsome illustrated quarto volume, which is divided into two parts. The first part consists of original articles by various writers mainly dealing with climatology, while the second contains announcements relating to spas, laboratories, sanatoriums, and hotels in Germany and other countries.

The July issue of the *Journal of Paediatrics* is dedicated to Professor Czerny, who has recently retired from the chair of children's diseases in Berlin University.

The Board of Trade has received complaints under Section 1 (5) of the Safeguarding of Industries Act, 1921, that insulin and its salts, carotene, and precipitated sulphur have been improperly excluded from the list of articles chargeable with duty under Part I of that Act, as amended by Section 10 of the Finance Act, 1926. The complaints will be referred for arbitration to a tribunal. Any communications should be addressed within three weeks to the principal assistant secretary, Industries and Manufacturers Department, Board of Trade, Great George Street, S.W.1.

The Import Duties Advisory Committee announces that it has received application for an increase in the import duty on (1) surgical knives and surgical and dental instruments, and (2) artificial teeth. Persons desiring to make representations in regard to these applications should do so in writing to the Secretary, Import Duties Advisory Committee, Caxton House (West Block), Tothill Street, Westminster, S.W.1, not later than August 16th.

Dr. William H. Park, director of the Public Health Laboratories of New York City, has been nominated the first occupant of the recently founded chair of preventive medicine at New York University and the Medical College of Bellevue Hospital.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Hypertrichosis

"H. B." asks for information about the treatment of a number of hairs simultaneously by diathermy.

*** In employing the diathermy apparatus for removal of superfluous hairs it is necessary to have a glass beaker, into the base of which a metal electrode is fitted and which is connected to the terminal of the apparatus. This is filled with water up to a convenient point, which can easily be ascertained on trial. The area to be treated having been decided upon, the operator passes a number of very fine and short needles (say a dozen) into the hair follicles, holding them in forceps for the purpose. Once in position they will be found to stay there without any difficulty. The beaker is then held so that the needles dip into the water and the current is turned on. The current is passed for about half a minute, after which the hairs will be found to be loose in their follicles, and can readily be pulled out without pain. This method, which is practised in Vienna, is said to be more rapid than ordinary electrolysis, and quite as satisfactory.

Bromidrosis

Dr. E. H. SMITH (Surbiton) writes: This is a troublesome complaint, and very prevalent at this time of year, among young adults. I have found that it can be greatly relieved, and in many cases cured, if patients will increase the consumption of "common table salt" with their food.

Income Tax

Car Replacement : Obsolescence Allowance

"E. H. C." bought a "C." car in 1923 for £438, and sold it in 1932 for £28, when he bought an "M." car for £295. In connexion with an "obsolescence" claim the inspector of taxes has asked him to say what it would have cost in 1932 to purchase a new "C." car of the type approximately equivalent to the car displaced. The "C." company ceased production about 1926 or 1927.

*** We advise "E. H. C." to explain that a "C." car is now unobtainable, and that it is probably a fair assumption that, allowing for automatic improvements in design, etc., the "M." car purchased may be taken as reasonably equivalent to a hypothetical "C." car of the year 1932.

Deferred Annuity Insurance

In a recent issue (July 8th) we replied to a correspondent—"R. H. J."—who inquired whether income tax relief was due to him in respect of a contract under which he paid premium for the benefit, *inter alia*, of a covenant by the insurer to pay a pension or annuity to him after he reached a specified age. The income tax relief is provided in the main in respect of contracts to secure lump sums payable on death, but it extends to cover deferred annuity contracts where (*a*) the contract secures a capital sum payable on death, or (*b*) it is "made in connexion with any superannuation of bona-fide pension scheme for the benefit . . . of persons engaged in any particular . . . profession." We have since been informed that the Inland Revenue authorities have agreed that in the case of the particular scheme in question—namely, that of the National Health Insurance Practitioners Pension and Insurance Scheme—the contracts for insurance provision are within the scope of the life assurance relief.

LETTERS, NOTES, ETC.

Declining Death Rates of Diphtheria and Scarlet Fever

Dr. S. P. WILSON (Wakefield) writes: Dr. Cobbett's article (*Journal*, July 22nd, p. 139) reminds me of certain doubts which periodically recur to me. Will the ultimate effect of antitoxin treatment be for the good of the community as a whole? Diphtheria mortality was falling even before the days of antitoxin, but the further improvement anticipated from newer methods of treatment has not been realized. Is this due in part to a less lasting immunity being acquired by individuals whose recovery is assisted by antitoxin administration, and is herd immunity or resistance consequently less than it would have been if the use of antitoxin had not become so general? Several factors may be affecting the situation, including the well-known periodic variation in severity of diseases, and so I do not claim that Dr. Cobbett's comparison of diphtheria with scarlet fever lends support to my suggestion, which I put forward quite tentatively. I have no misgivings about diphtheria immunization, which seems to me a logical method of attack. Neither do I question the value of antitoxin in the individual case—a value which makes the problem of treatment more difficult; but public health is concerned with the race as well as with the individual.

Tinnitus and Deafness

Dr. F. G. CAWSTON writes from Durban: In the treatment of tinnitus and deafness inflation of the middle ear should be postponed until breathing through the nose is both healthy and clear. Where the Eustachian catheter is employed a piece of rubber tubing should be used to attach it to the air-bag and thus avoid jarring. Inflation relieves only a limited number of those cases of tinnitus and deafness which are due to Eustachian incompetence, and, unfortunately, bougies are liable to damage the lining of the Eustachian tube. Where the tube remains narrowed, constant use of the catheter may produce a stretched and sensitive drum. The eighth nerve is the most sensitive to slight changes in the circulation, tinnitus being set up rapidly in susceptible persons after the ingestion of certain foods or exposure to atmospheric changes, and fatigue. Anything which relieves local congestion assists in the relief of many cases of tinnitus, and more attention should be paid to prolapsed colon and other indirect causes. As a lifelong sufferer from tinnitus, unrelieved by careful attention to diet, teeth, and nasal obstruction, I appreciate to the full the need for skilful judgement in the handling of both early and chronic cases.

Disclaimer

Dr. NORMAN HAIRE (London, W.) writes: My attention has been drawn to an advertisement, in one of the newspapers, of a book to which I have written a preface, and I find that the publisher has described me as "the eminent gynaecologist." May I disclaim all foreknowledge or responsibility for this error of taste, which could not reasonably have been expected from a firm of the standing of the one concerned. I communicated with them immediately, asking them to see that the words are deleted from all forthcoming advertisements, and nothing of the sort added to the simple mention of my name.

Corrigendum

A mistake occurred in the proof correction of the President's Address, published last week. In the paragraph beginning near the top of column 1 of page 187, the second sentence should have run: "In June of this year the Irish Medical Association numbered just under 400, and the members of the British Medical Association resident in Ireland were nearly *1,100*."

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 32, 33, 34, 35, 38, and 39 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *108*.

An Address

ON

NATIONAL HEALTH POLICY: A CRITICAL SURVEY *

BY

J. L. BROWNLIE, M.D., D.P.H.

CHIEF MEDICAL OFFICER, DEPARTMENT OF HEALTH FOR SCOTLAND

On looking, for the first time in cold print, at the title of this discussion I had the feeling that it was rather too ambitious for what I had to contribute. I do not propose to conduct a critical survey of national health policy; I know, indeed, that I could not implement any such proposal. In national health policy in this discussion we are embracing the whole range of activities of which the State takes cognizance as affecting the health of the people. These activities include the work of the public health official, the medical practitioner—whether in public or private practice—the hospitals, and various specialized bodies engaged directly or indirectly in work which contributes to our knowledge of disease or to healthy living; they also include medical teaching and research. What I want to do is to gather up certain broad lines of criticism that have been emerging with increasing force in recent times, and to suggest to you that the case has been established for a detached and scientific review of our achievements, aims, and organization. My conviction is that until such a review has been carried out and certain fundamental questions answered we cannot hope to advance appreciably further either in organization or in results.

The improvements in our sanitary environment, the control of infections, the virtual wiping out of major plagues and pestilences, the reduced infantile mortality and general death rates, and our lengthened span of life have justly provided the theme of many paeans of triumph at annual conferences. We are entitled to claim that medical science has contributed much to these results, and I do not wish for a moment to depreciate them as real causes of satisfaction. But the undercurrent of dissatisfaction persists and grows stronger. How far do the falling death rates signify a definitely higher standard of physical fitness in the race? The public health services have to meet the attack that in some directions they are actually dysgenic in their operation. There is scarcely a medical administrator who is not ready to declare that our results fall short of what we had hoped for, and that, in many directions, they are meagre in proportion to the amount of effort expended in their achievement. The insurance medical service is criticized on the ground that, through deficiencies of scope and organization, the quality of its service lags behind the advance of medical science. There is a mass of invalidism that persists despite our knowledge of means to prevent it. There is much criticism of the medical curriculum. All these criticisms and dissatisfactions need not be taken at their face value; but their causes are various, they come at widely different angles, and it would be foolish complacency to ignore them. I do not propose to go over them in detail or in any definite order; I propose merely to show by some observations that there is substance behind them.

In Scotland we have recently secured highly suggestive data which give point to some of the criticisms of present health policy. The Department of Health for Scotland in 1930 instituted a morbidity statistics scheme. This scheme involves the routine collection of all medical certificates of incapacity among the insured population. By the collation of the statistics of incapacity the Department is in a position to supplement the ordinary statistics of mortality with those of morbidity among the insured population according to age, sex, occupation, and locality. This appears to me to be an important development; it may be a landmark in the history of public health of the same kind, though not of the same significance, as the institution of the comprehensive system of vital statistics last century. The following quotation from a recent summary by Dr. McKinlay, Statistical Medical Officer of the Department, will illustrate:

"Comparison with the present statistics shows how grossly distorted a picture of the real sickness incidence is afforded by mortality or institutional morbidity figures. Conditions there are, in fact, almost the reverse of actual general practitioner experience. The principal causes of death take very inferior positions as causes of disability. Tuberculosis, malignant disease, heart disease, pneumonia, kidney disease—conditions all too frequent in mortality or in teaching hospital experience—account for a very minor proportion of the cases of disability, but, of course, in view of their higher average duration, for a somewhat higher, but still none too prominent, position in the time lost from sickness. On the other hand, we notice what heavy contributions, both in point of numbers and duration, are made by influenza, minor diseases of the upper respiratory tract (which include affections of the tonsils and adenoids, nasal septum, and related sinuses), accidents, the acute and chronic rheumatic conditions (lumbago, arthritis, synovitis, bursitis, brachial neuritis, and sciatica), the inflammatory and septic conditions of the skin and cellular tissues, and the digestive upsets labelled gastritis and gastro-enteritis."

Dr. McKinlay has suggested that the picture presented by these morbidity data could be utilized with much benefit for teaching purposes, and would at least help the embryo physician to visualize how different from his teaching experience will be his future work among the general population. In Scotland there are 2,000 insurance practitioners, and during the year to which this summary relates there were only 2,000 cases of terminated incapacity ascribed to tubercle, 774 to malignant disease, 3,666 to gastric and duodenal ulcer, and 7,022 to appendicitis. It is obvious, after making all necessary allowances, that many of the conditions so constantly appearing in hospital work may not be seen once in the course of a whole year by many doctors in general practice.

The bearing of these and other features of the morbidity statistics on the present controversy over the medical curriculum is obvious. I need not elaborate that point. At the moment I am more concerned with their bearing on the general direction of national health policy. Do they not tend to confirm—as the late Sir James Mackenzie used to maintain—that medical policy generally, as well as medical teaching, is directed too much to the end-results instead of to the beginnings of disease? Ample diagnostic and specialist facilities are provided for tuberculosis, heart disease, and cancer; but every practitioner can testify to the difficulty he experiences in securing the necessary help, either in the way of diagnostic aids or treatment facilities, for nervous and cardiac debility, "D.A.H." and tachycardia, gastritis, bronchitis, and rheumatism—the conditions which he meets daily in his practice. The medical student is taught to apply some of the latest advances of medicine—the electrocardiogram, biochemical tests, and so on. Where are the facilities for using this knowledge once he is engaged in practice?

This deficiency of diagnostic facilities is one of the patent defects of the national insurance medical service. It is not the only one or even, perhaps, the most important, as members of the British Medical Association are well aware. The insurance medical service has taken its place as an essential part of our social organization. It is essential in the sense that we cannot think of

* Read in opening a discussion in the Section of Public Health at the Annual Meeting of the British Medical Association, Dublin, 1933.

returning to the old conditions—including club practice—which the national insurance scheme superseded, and it is unlikely that the community would ever contemplate with equanimity abandoning a scheme which ensures to the industrial population at call the services of a qualified medical practitioner. This scheme has done an enormous amount of good work, and on the whole it has justified itself. But it would be extravagant to claim that it has realized the expectations of those who launched it. When the scheme was started it was believed that preventive work would gradually emerge to play an important part alongside treatment. Where is the preventive service now? Has the operation of the scheme raised the quality of the medical profession as a whole? Most insurance practitioners, conscious, as they have every right to be, of the good work they do under the scheme, are yet ready to admit that their work does not achieve its full results, that they are hampered by limitations in the scope and range of the service, and by the inadequacy of necessary facilities for diagnosis and treatment. They are ready to admit, too, that much of their labour is devoted to ills of which the means of prevention are well established but are not used.

You are all familiar, no doubt, with the proposals of the British Medical Association to repair the deficiencies of the insurance medical service. Broadly stated, the Association desires to make the service complete: (1) by providing a medical service not merely for the class at present insured, but also for their dependants and others in like circumstances; and (2) by putting behind that service organized facilities for diagnosis and treatment in supplement of the practitioner's own resources. But may I suggest—without entering into any discussion of the Association's proposals—that the deficiencies of the insurance medical service are not simply a matter of statutory provision or of organization. If you have agreed with me in my previous suggestions, you will agree now that these deficiences reach back through organization and so on to the medical curriculum, and beyond the medical curriculum to the fundamental aim of national health policy.

The quality of the insurance medical service depends in the last resort on the quality of the insurance practitioner, and if his training is too much concerned with end-results how can he be expected to deal adequately with the mass of ailments, constituting the bulk of his daily work, which are not end-results, but which are the early stages of critical disease? To extend and supplement our existing organization without first having a clear idea of what the organization is aiming at, is to risk repeating old failures. If we clarified our aims we might find that changes more fundamental than additions to the present organization were required. We might find, for example, as I have suggested, that changes were necessary in the medical curriculum. We might find, also, that the reason the national health insurance service has done little as a preventive service is that medicine generally, as manifested in the training of medical students, in medical research, in our hospitals, and in our organized health services, is too much concerned with postponing death rather than with the promotion of healthy living.

If we turn to what we commonly call the public health services—sanitation, maternity and child welfare, school health services, infectious diseases, and so on—we encounter much the same mixture of satisfactions and dissatisfactions, and the same fundamental difficulties due to obscurity or confusion of aim. In these services prevention traditionally plays a large part. From our earliest attempts to control the spread of infection by measures of isolation, through the great development last century of pure water supplies, effective sewerage, and improved sanitary environment, the history of public health has been dominated by the idea of prevention. It should be remembered that there has always been an interplay between public health and the relief of poverty, and the rise during this century of social legislation in the form of insurance acts, special measures for maternity and child welfare, for control of tuberculosis, and so on, properly understood, was a continuation and development of this historical connexion. It was inevitable with this development that the balance should shift somewhat from prevention to treatment, and I am not sure that the emphasis has not shifted a little too far.

You are all familiar with the criticisms, now current, of individual services. It is said of the school medical service, for example, that too much of the work is merely the cataloguing of defects; of the tuberculosis service that tuberculosis is an eminently preventable disease, and that if some part of the money and effort devoted at present to treatment in sanatoriums were added to the inadequate measures for prevention, much more could be achieved. The success of the measures we have in operation for the systematic supervision of dairy herds, for example, ought to encourage us to further preventive efforts. There is little doubt, too, that the whole sanatorium policy calls for review in the light of what we have learned since it was instituted in 1912. It is said of our measures for controlling infection that, although much has been achieved, the persistence of the toll which the commoner infections—diphtheria, scarlet fever, measles, and whooping-cough—levy on child life is a reproach in view of our knowledge of immunization, nutrition, and other protective and preventive measures. Of the child welfare service it is said that it tends to drift from its preventive purpose to the pleasant exercise of not too discriminate philanthropy. Our measures for safeguarding motherhood have to suffer the reproach of a stubbornly unyielding death rate of mothers in childbirth. One could go on with this catalogue. Many members present could no doubt go much further than I, and, like myself, they would not find any pleasure, or be indulging any carping spirit, in itemizing criticisms.

We are conscious of failure in certain directions, and we are all anxious to discover the causes. Something is certainly due to defects of organization. The British Medical Association stresses the defect due to the separation of the family practitioner from the public health services. It urges that participation of the family practitioner in the work of the local authorities on maternity and child welfare, school health, and public assistance would make for a better service. That proposal, again, I am not going to discuss beyond pointing to the obvious fact that development of the public health and public assistance services on a whole-time salaried basis—that is, broadly, on existing lines—would lead to a State medical service operating on a scale that might be regarded as formidable. But if we admit that our organization for the public health should be based on the family practitioner, are we not thrown back again on the training of the practitioner and on the fundamental aims of health policy? If prevention of disease and the promotion of healthy living are regarded as the fundamental aims of policy, some alteration will have to be made in the training of the family practitioner before the execution of policy can be handed over to him.

It is urged also by the British Medical Association that the absence of an organic link between the insurance medical service and the local health authorities is a patent defect of organization. It can be readily agreed that the British Medical Association is right. But to establish the liaison, for example, by transferring the work of insurance committees to town and county councils, cannot be done as a mere matter of organization. Behind this

question, as behind most of those I have touched on, and many others such as the relation between industrial medicine and the other services, lies the deeper question of the aims of national policy.

Nowhere in the Statute Book can I find any definition of aims that would give us a unifying line through our problems of organization. The truth is, as we all know, that the health services have grown up haphazard. From crude beginnings at control of infection they now embrace a range of scattered activities that include sanitation, infectious diseases services, with special branches for tuberculosis and venereal diseases, school medical service, maternity and child welfare, industrial medical inspection, national health insurance, and several others. Each development of a service or addition to the number of services was made in response to some special need or feeling of the times. The result is a congeries of disparate activities. The insurance practitioner works in his field, the child welfare officer in his, the school medical officer in his, and none is inspired by the feeling that he is linked to the others by a common purpose.

It is my own belief, and the belief of many others, that we cannot and should not expect to solve our problems of defective results or organization until we have arrived at a definition of policy that would unify, so far as is possible, the whole range of activities bearing on the health of the people. That is not a job solely or even primarily for medical men ; but the medical man must make his contribution along with the biologist, sociologist, administrator, and the plain citizen. The need for a clear definition of policy has been reinforced by the development of biological science in recent times. I do not mean by biology the crude propaganda that masquerades as eugenics, although the criticism that in some respects we are striving officiously to keep alive the weak at the expense of the strong, and thus doing injury to biological principles and to the race in the long run, has to be met. But biology, the science of life, and that branch of it, social biology, which deals with the numbers and quality of population, has much to say to us that could not be said when many of the present services and much of our existing organization were established. It will be strange if, in the light of modern biological knowledge, we do not find it necessary to adapt our services and organization so as more directly to promote healthy living. I do not imply that philanthropy should be shut out from the health or other social services ; far from it. Philanthropy is a good old word, much abused, and the spirit it expresses, I hope, will live on in all our activities. What I imply in my plea for a biological assessment is a clearing of our minds so that we shall know when we are serving a biological and when a philanthropic purpose, and we shall regulate our activities accordingly.

The present is a time for stocktaking in medicine and in health policy. We have to discover our aims ; we have to assess the worth of our present activities and modify them where necessary, so that they may most fittingly achieve the ends of defined policy. From such a stocktaking there will come, I believe, not merely improved organization, but also a new inspiration, which will carry us to achievements in public health greater than any we have known.

THE PRESENT POSITION OF SEROLOGY IN RELATION TO THE PATHOGENIC COCCI*

BY

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During the past decade there has been a rapid expansion of our knowledge of the pathogenic properties of the cocci which cause disease in man—more especially of the Gram-positive group. The chief advance has come from the realization that staphylococci and streptococci are true toxin-producing organisms in the same sense that the diphtheria bacillus and tetanus bacillus are toxin producers. Although no true toxin has been discovered for the pneumococcus, improved methods of production of antibacterial serums have brought a new hope in the treatment of pneumonia. I propose to discuss the bearing which these and other advances have had upon the serology of the pathogenic cocci in relation to the recognition, prevention, and treatment of the human diseases for which they are responsible.

Staphylococcus

It has frequently happened in the history of mankind that a calamity has been turned to good account through the stimulus it has provided for more thorough investigation and research. While the existence of staphylococcal toxins had been fully realized and many of their properties had been described (Neisser and Wechsberg,[1] 1901 ; Kraus and Pribram,[2] 1906 ; Nicolle and Cesari,[3] 1914 ; Parker,[4] 1924), a disaster at Bundaberg, Queensland, in 1928, led to a more intensive study of staphylococcal toxin and antitoxin by Burnet[5 6 7] (1929, 1930, and 1931). In this disaster twelve of twenty-one children, who had been inoculated with contaminated diphtheria toxin-antitoxin, died from acute staphylococcal septicaemia. Subsequent to the work of Burnet in Australia, the investigations of Weld and Gunther[8] (1931) in America, Parish and Clark[9 10] (1931), Panton, Valentine, and Dix[11] (1931), and Panton and Valentine[12] (1932) in England, amongst others, served to make the properties of staphylococcal toxins and antitoxins more apparent.

Toxic Products

Toxins prepared by a special method kill rabbits, guinea-pigs, and mice rapidly, produce skin lesions in guinea-pigs and rabbits (necrotoxins or dermotoxins), and have a destructive action on leucocytes (leucocidins) and erythrocytes (haemotoxins or haemolysins). An enterotoxic substance, which caused vomiting and diarrhoea in monkeys, has also been described by Woolpert and Dack[13] (1933), who have made a special study of strains of staphylococcus from cases of food poisoning. There was a rough correlation between the amount of this food poison and the amounts of killing toxin, dermotoxin, and haemolysin. Although Burnet formerly regarded the various toxic constituents as manifestations of a single toxin, the work of Weld and Gunther[8] (1931) and Woolpert and Dack[13] (1933) suggests plurality of toxins, and Glenny (unpublished) has found at least two haemolysins with specific antibodies. In human disease the various toxic properties, which have been demonstrated in animals and *in vitro*, undoubtedly play their part ; the lethal effects were only too clearly demonstrated at Bundaberg. There is no skin test for susceptibility or immunity to staphylococcal infections in human subjects analogous to the Schick and Dick tests. The reactions

* Read in opening a discussion in the Section of Pathology at the Annual Meeting of the British Medical Association, Dublin, 1933.

which follow the intradermal injection of toxic filtrates cannot be correlated with the amount of circulating antitoxin (Bryce and Burnet,[14] 1932).

Toxoid

Staphylococcal toxins may be rapidly converted into toxoid by formaldehyde. Toxoid is innocuous to laboratory animals, but can still bind antitoxin *in vitro*, and is an efficient immunizing agent, producing an increase in the amount of circulating antibody. Encouraging results have been reported from its use in the treatment of persistent, intractable, or recurrent staphyloccal diseases (Panton and Valentine,[12] 1932, Dolman,[15] 1933). We have provided some clinical friends with toxoid for use in cases of the kind under controlled conditions in an endeavour to confirm these observations.

Antitoxin

Antitoxin which is also an antihaemolysin can be prepared by the inoculation of horses and rabbits with a culture filtrate, but not with washed whole staphylococci. The serum can be concentrated. Apart from its capacity to neutralize toxin *in vivo* and *in vitro*, its most interesting property is that when it is given intravenously to rabbits with, or a few hours after, a certainly fatal dose of virulent living culture it prolongs and in some cases saves life. It is perhaps not generally realized that the use of antitoxic serum in staphylococcal infections is a recent development, for the older anti-staphylococcal serums were produced in response to immunization with suspensions of staphylococci and not toxic culture filtrates. The excellent results which have been obtained with antitoxin in laboratory experiment, and the promise which has attended its use in a small number of patients, justify more extensive clinical trial, especially in staphylococcal septicaemia. It is likely to be most effective in cases in which toxaemia is predominant, and should be given early, in large doses, and by the intravenous route. It is a rational form of therapy, for, theoretically at least, a serum which neutralizes toxins impedes one of the more important modes of attack by the staphylococcus, and thereby aids the natural defences of the tissues. On the other hand, one has to admit that contradictory reports have been made as to its usefulness. Its effect on the invasive properties of the coccus has not yet been determined, and it cannot be expected to take the place of surgery in such conditions as osteomyelitis, and staphylococcal abscess of the kidney, although it may be a useful adjunct. I have already referred to the plurality of toxic constituents in staphylococcal filtrates; antibodies to these substances are developed in different amounts in the serum of horses undergoing immunization. Further clinical investigation is necessary in order to assess the importance of these differences in antitoxic serums.

STREPTOCOCCUS

Haemolytic Streptococcus Exotoxin and its Specificity

As in the case of the staphylococcus, the early literature of the haemolytic streptococcus contains many references to haemolysin, leucocidin, and the toxic symptoms produced after the injection of culture filtrates into animals. A new era of research followed the discovery by the Dicks[16] (1924) of the rash-producing (erythrogenic) property of the exotoxin of a scarlet fever strain. Filtrates were subsequently prepared not only from streptococci isolated from scarlet fever, but also from septic sore throat, erysipelas, puerperal fever, and other infections. There is still some difference of opinion as to the interrelationship of these toxins, but it is coming to be recognized that in most cases there is, if not identity, at least a common valency. "A clear-cut disease specificity of haemolytic streptococcus exotoxin quite definitely does not exist" (Williams,[17] 1932). Parish and Okell[18] (1928) and Okell[19] (1932) have stressed the essential similarity of toxins of the majority of strains from different sources. These workers found that scarlet fever antitoxin, prepared by the immunization of horses with filtrates of the Dochez strain of *S. scarlatinae*, could counteract toxaemia in rabbits infected not only with cultures of haemolytic streptococci from scarlet fever, but also from erysipelas and puerperal septicaemia. Homologous antitoxins, prepared with the less toxic filtrates of erysipelas and puerperal strains, were also effective, but to a less extent than the scarlet fever antitoxin. McLachlan[20] (1927), J. Smith[21] (1927), and other workers have performed cross-neutralization tests in Dick-positive subjects, and also concluded in favour of the very close relationship of the toxins used. Wadsworth[22 23] (1932 and 1933) has, however, noted that marked qualitative variations may be encountered in the toxins, even of two closely related strains, but that with selected cultures—for example, the Dochez N.Y.5—a serum could be prepared which neutralized the toxin of a large number of strains. Wadsworth agrees with Parish and Okell that there is no known method of distinguishing between the so-called *S scarlatinae* and other human haemolytic streptococci, such as *S. erysipelatis*, and that "phasic variations" on the part of the streptococcus developing under special conditions of susceptibility on the part of the host would explain the apparently "specific" clinical conditions resulting from infection. He distributes for the treatment of all streptococcal infections a monovalent serum prepared by the immunization of horses with a scarlet fever strain of streptococcus—the Dochez N.Y.5—a procedure which has also been recommended by the English workers.

Antitoxin Treatment of Scarlet Fever

There would appear to be little doubt in this country and in America as to the value of scarlatinal antitoxin in the treatment of the initial toxaemia of scarlet fever, but there is very conflicting evidence as to its usefulness in preventing the septic complications. In the laboratory we found that while we were able with antitoxic serum to protect rabbits from the acute phases of the septicaemia resulting from the intravenous injection of culture, the majority of rabbits developed arthritis towards the end of the first week or later. Protection was never obtained against this phase of the infection with any antitoxic or so-called antibacterial serum we used. It is perhaps not surprising, therefore, that the incidence of septic complications has not been greatly influenced in hospital wards. Banks[24 25] (1932 and 1933) has had excellent results following the intravenous use of antitoxin; septic complications were almost wholly prevented, and the period of morbidity was reduced to just over a fortnight. On the Continent, however, where more serious outbreaks have occurred, the newer therapy has not established itself as an unqualified success, even in combating the initial toxaemia. It is possible that difficulties in connexion with titration, and thus with ensuring supplies of potent serum, have here played a part. Veldee, Stevenson, and Mitchell[26] (1931) have also concluded that "there is not an irrefutable case for the use of streptococcus antitoxin in the treatment of scarlet fever," but it should be noted that the majority of their cases were mild, and the dosage for the more severe cases would be considered inadequate by most clinicians. From a general review of the clinical and laboratory evidence I have little doubt that the treatment of scarlet fever with antitoxin is a rational procedure and has come to stay.

Passive Immunity and Active Immunization

McClean[27] (1927), Joe and Swyer[28] (1929), Nabarro and Signy[29] (1931), and many others have injected antitoxin prophylactically in doses of 5 to 10 c.cm. into all the Dick-positive contacts of cases of scarlet fever in hospital wards. Passive immunity is conferred which lasts for about a fortnight. At Great Ormond Street Hospital the method has been highly successful ; nearly all cleft-palate and hare-lip patients are Dick-tested, and, if positive, given antitoxin before operation ; scarlet fever rashes do not occur as in the pre-antitoxin era. Operations on the mouth region are carried out almost with impunity in any ward where scarlet fever is present. While serum has been used prophylactically in many other institutions in England with highly satisfactory results, it is, rather surprisingly, not employed to the same extent in the United States of America.

Dick-positive persons can be actively immunized with toxin, and become in this way negative (Dick and Dick,[30] 1924). Williams[17] (1932) recommends five subcutaneous injections of 500, 2,000, 10,000, 20,000, and 40,000 S.T.D. (skin test doses), and retests after one to six months. The majority of fever hospital superintendents are emphatic that active immunization is worth while, and state that nurses naturally Dick-negative do not contract scarlet fever.

Serum Treatment of Streptococcal Infections other than Scarlet Fever

The efficacy of haemolytic streptococcal antitoxin in combating non-scarlatinal infections has also been the subject of inquiry, and, although a beneficial effect has sometimes been reported, there have been many failures, and some years must elapse before a final judgement is possible. Wadsworth[23] (1933) has had striking improvement in erysipelas, the effect on the toxaemia preceding by a short interval in most cases the improvement in the local lesions ; in other cases, however, serum therapy was without avail.

(Incidentally, in rabbit experiments, Parish and Okell[18] (1928) could find no evidence of specific blocking with antitoxin of the skin reactions produced by haemolytic streptococci injected intradermally, although, as stated above, they were successful in controlling the toxaemia following the intravenous injection of haemolytic streptococci from various sources. Their results regarding the influence of antitoxin on skin lesions were thus at variance with those of Birkhaug[31] (1925).)

In miscellaneous streptococcal infections, with and without bacteriaemia, Wadsworth has had good results, provided the appropriate surgical measures were also employed whenever indicated, but his most encouraging cases were those of septic sore throat, in which the response to serum therapy was " even more striking and spectacular than in scarlet fever or erysipelas." The last claim is surprising, for one would hardly expect passive antitoxic immunity to have much influence on the local faucial manifestations of streptococcal disease. Wadsworth insists that in all streptococcal diseases early administration and adequate dosage are all-important if success is to be achieved.

Another recent paper to which I must refer is that by Benson and Rankin[32] (1933), who deprecate the use in *puerperal septicaemia* of large doses of expensive serum, which have not only been ineffective, but have caused unpleasant symptoms, especially after intravenous injection. They make an exception for its use in the rare cases of puerperal scarlet fever. Since the vast majority of haemolytic streptococci from whatever source are capable of producing erythrogenic toxin *in vitro*, the use of antitoxic serum is theoretically sound treatment, even in those cases in which rash is absent. One might expect the antitoxin in certain instances to " tip the beam " in favour of recovery. However, some clinicians of repute, though not all (see Wadsworth,[23] 1933), have come to the same conclusion as Benson and Rankin, as to the inadequacy of streptococcus antitoxin in puerperal cases. Apparently the extent and severity of the local condition, in particular the presence or absence of dying or necrosed tissue, are much more important factors in determining the prognosis than is the amount of erythrogenic toxin passing into the circulation. In this connexion it is of interest to note that there is no significant difference between the liability of Dick-positive and Dick-negative pregnant women to invasion with the haemolytic streptococcus (Joe,[33] 1929). On reviewing the situation I feel I cannot lightly dismiss the presumptive evidence that scarlet fever antitoxin may be a useful therapeutic measure in the early high fever of puerperal streptococcal infections.

Although an antibacterial action on a homologous strain has been attributed to serums prepared experimentally by Lancefield and Todd[34] (1928), Downie[35] (1930), and others, no *antibacterial serum* is at present available to combat the pyogenicity and invasive properties of the streptococcus. Recently hope was raised by the preparation of an antihaemolysin of high titre by Todd[36 37 38 39] (1932 and 1933). Unfortunately " haemolysin " cannot be identified with the pyogenic principle.

Titration of Antitoxin

Titration of antitoxin is still a matter of considerable difficulty, no method having yet met with international acceptance. The skin neutralization test on human subjects—determining the quantity of antitoxin which will neutralize a known amount of toxin on intradermal injection—is much used in America. Veldee[40] (1932) has recently devised a similar skin neutralization method on the inner surface of the rabbit's ear. This method is still in the experimental stage, but has not proved very satisfactory in our hands. It is apparent from recent publications (Wadsworth,[23] 1933) that there is difference of opinion in America as to the minimum standard of potency for issue, and that many serums have been issued in the past of relatively low value. In our own laboratory the Parish-Okell[41] rabbit method—finding the quantity of antitoxin which will neutralize a culture of the Dochez streptococcus, or a dose of toxin given intravenously—has been used for many years, and a review of the evidence gives reason for believing that the rabbit method has ensured the production in England of serums which have been satisfactory clinically ; tested by this method they have corresponded in potency to the best serum made abroad. My colleagues, Dr. Buttle, Dr. O'Meara, and Miss Whatley, have recently been engaged in investigating other and less expensive methods of titration. Dr. Buttle has been able to evaluate serums on the skin of selected rabbits—not necessarily chinchillas—on the lines originally suggested by Fraser and Plummer[42] (1930), (see also Kolchin: *Journ. Immunol.*, 1933, xxiv, 397), and Dr. O'Meara has had encouraging results with a flocculation test akin to the Ramon method for diphtheria toxin and antitoxin. Although it cannot be assumed that the reacting substances in the flocculation test are identical with the erythrogenic toxin and antitoxin, the method should prove a useful adjunct to other tests, even if it cannot replace them. A similar method has been used in Park's laboratory in New York (see Williams,[17] 1932), to determine tentatively the strength of toxins, but O'Meara has shown that the test can be applied to both unconcentrated and concentrated antitoxins. Research is constantly in progress to improve the potency of streptococcal toxins by studying the growth factors, as has been done for diphtheria toxin. Another recent development has been the selection of the most suitable horses for immunization, by ascertaining the presence or absence of natural

antibody. It is hoped that the future application of knowledge acquired in these studies will ensure the preparation of antitoxin of much higher potency than hitherto. With improved serums some advance should be possible in the therapy of streptococcal disease.

Precipitation and Agglutination

Time does not permit of a consideration of the analysis by Lancefield[43 44] (1928 and 1933) of the antigens present in the haemolytic streptococci, nor of the careful work on agglutination by F. Griffith[45 46] (1926 and 1927) and others. The observations of Glover and Griffith[47] (1931) on the common streptococcal infections of school age are, however, of considerable epidemiological importance. In the words of Okell[19] (1932), the present position with regard to agglutination is "much the same as with the meningococci and pneumococci where in larger epidemics certain types tend to recur, yet in interepidemic periods the organisms may be serologically heterogeneous."

Rheumatism

Acute rheumatism is now regarded by some workers as a condition of hypersensitiveness induced by some focus of streptococcal infection usually assumed to be in the tonsil. The allergic state can be set up by a large variety of streptococci (Swift et al., [48] 1931), of which the haemolytic group is probably the most important (Coburn,[49] 1931). Glover and Griffith[47] (1931) and Coburn and Pauli[50] (1932) regard as significant the comparative incidence of haemolytic streptococcal tonsillitis and rheumatic manifestations. In this country and in America investigations are now in progress on the dermal reactions frequently obtained with extracts of streptococci in rheumatic subjects (Collis,[51] 1931). It has been shown by Todd[37 38] (1932 and 1933) that abnormally high antistreptolysin titres may be present in the serum of rheumatic fever patients: this is further evidence of the association of acute rheumatism with previous haemolytic streptococcal infection. Antistreptolysin and antitoxin are apparently independent antibodies.

Non-haemolytic Streptococci

Apart from their possible role in the aetiology of rheumatic affections, the non-haemolytic streptococci may produce subacute infective endocarditis and occasionally septicaemia. On the whole, measures of treatment so far adopted—vaccines, immuno-transfusion, and the administration of serums prepared against the organisms isolated—have been singularly unsatisfactory.

Pneumococcus

I propose to restrict my remarks to certain aspects of the serology of the pneumococcus which have specially interested me, and to leave the more general discussion to Dr. Cruickshank, who has for some years been concerned in an investigation into the value of the serum treatment of pneumonia in Glasgow, and who gave the Milroy Lectures this year on pneumococcal infections.

Preparation and Titration of Serum

Antipneumococcus serum is prepared by the intravenous injection into horses of suspensions of dead virulent pneumococci. In some laboratories living organisms are subsequently injected to complete the course of immunization. The serum, which is type-specific, can be concentrated (Felton,[52] 1925). Titration of serum is really limited to the mouse protection test, the usual technique being an adaptation of the League of Nations method—that is, determining the smallest amount of serum which will protect mice against 0.01 c.cm. or 0.001 c.cm. of a culture of which the minimum lethal dose is 0.0000001 c.cm. to 0.000000001 c.cm., all the injections being given intraperitoneally (Felton,[52] 1925; Parish and Trevan[53](*a*) [53](*b*) 1930). Goodner[54] (1928) has suggested a method of titration in rabbits involving the intravenous injection of serum following the intradermal injection of culture, but this test is impracticable for the routine examination of large numbers of samples of serum. Sabin[55] (1933) has confirmed Goodner's observation that the rabbit intradermic method may give a different evaluation of potency from the mouse intraperitoneal method. *In vitro* methods of titration have also been investigated. The agglutination titre does not correspond with the antibody content measured by the mouse protection test. The precipitation value obtained with the soluble specific carbohydrate (Wilson Smith,[56] 1932) shows a much closer correlation with the mouse test values than does the agglutination titre, and it is therefore possible that the precipitation test may be useful in controlling the routine immunization of horses. Very recent work concerns the preparation and titration of a stable dried standard of potency based on the Felton standard, Type I (Hartley, Parish, Petrie, and Wilson Smith—*Lancet*, 1933, ii, 91). Dr. Hartley is now engaged in preparing a similar dried standard serum, Type II. A unit is defined as a certain definite weight of the dried product, and not, as in the case of the original Felton liquid standard, as that amount of serum which will protect against a million fatal doses of culture. By the use of this stable standard more accurate potency estimations of commercial serums should be possible. It follows that the labelled unitage of serums will be more correctly stated, and the clinician will thus be better equipped to estimate his dosage.

Treatment with Serum

The very high degree of protection obtained in mice would lead one to expect better results than have been reported in the treatment of pneumonia in man. In the mouse, however, the type of disease produced is not pneumonia, but a general septicaemia. When the serum is given intraperitoneally to mice at the same time as a million fatal doses of the homologous organism the animals can be saved; administered up to four hours afterwards it is still possible to "catch up" this massive infection (Parish,[53] (*a*) 1930). Petrie and Morgan[57] (1932) have made an exhaustive study of the therapeutic efficiency of serum against much smaller infecting doses, and have saved mice twelve hours after infection, even when there was demonstrable bacteriaemia. One is therefore encouraged to continue research on methods of preparing the most suitable suspensions for the immunization of horses, and on the concentration of serum. By the use of improved methods of immunization it has already been possible to prepare, in selected horses, unconcentrated serum of unusually high potency. This unconcentrated serum has the outstanding merit of cheapness. It is now generally agreed that serum reduces the mortality from Type I pneumonia in man, and probably produces a slighter, but still appreciable, effect on Type II cases. The therapeutic efficiency of serums prepared against other pneumococcal types is now being investigated in America. The serum should be given intravenously in large and, if necessary, repeated doses. The patient's clinical condition is usually regarded as the best indication as to further dosage, but Francis[58] (1933) has recently made use of a test injection of the soluble specific carbohydrate, given intradermally six to eight hours after the administration of serum. If no reaction is observed within half an hour a further amount of serum is given, but if the response is positive additional serum is unnecessary, for recovery has already begun. The work of Alston and Lowdon (*Brit. Journ. Exper. Pathol.*, 1933, xiv, 1) does

not support the view that positive skin reactions are associated solely with recovery from pneumonia.

Reactions After Intravenous Injection

In the early days of concentrated purified serum (Felton,[52] 1925) the reactions which occurred after intravenous injection were a serious drawback to its clinical use. With improved methods allergic manifestations have seldom been severe, and have yielded to the administration of adrenaline. For some years we have used mice for the detection of batches of serum of abnormal toxicity. A group of ten mice receives intravenously doses of 0.5 c.cm. of each concentrated serum, and the immediate and late effects are observed; if more than two of the animals die the batch is regarded as unsuitable for clinical use. We believe that this test has materially reduced the chance of reactions following the intravenous use of serum.

Serological Typing

One of the great deterrents to the use of serum has been the necessity for the serological typing of the infecting organism. Speedy and more accurate typing is now possible by such methods as those described by Sabin[59] (1930), Armstrong[60] (1932), Logan and Smeall[61] (1932), and Valentine[62] (1933). (See also Sabin: *Journ. Amer. Med. Assoc*, 1933, c, 1584.)

MENINGOCOCCUS

The serology of the meningococcus is on a much less satisfactory basis than that of the organisms we have just considered, for up to the present we have been severely handicapped by the lack of a reliable animal test for the differentiation of toxic products or the titration of serum. The position, however, will be radically changed if recent work, to which I shall shortly refer, is developed and confirmed.

Endotoxin and Exotoxin

The toxin of the meningococcus has usually been regarded as a typical endotoxin which can be liberated from the bodies of the organisms by autolysis, solution in 0.025 N NaOH, lysis by fresh guinea-pig serum, and various other methods (Besredka,[63] 1906; Gordon,[64] 1920; Murray,[65] 1929; Malcolm,[66] 1932). In comparative tests in mice, guinea-pigs, or rabbits no very reliable or constant results have been obtained with endotoxin or with dead cocci, although there is no doubt about their toxicity in sufficiently large doses. For many years all attempts to prepare a soluble toxin from the meningococcus have been unsuccessful, but recently Ferry, Norton, and Steele[67] (1931), Ferry[68] (1932), and Krestownikowa, Belkina, Dosser, and Lasowsky[69] (1933) have prepared filtrates from cultures on hormone broth, which were not only toxic to laboratory animals but were also antigenic. Rake[70] (1933) has studied the biological properties of "fresh" and "stock" strains, although not from the standpoint of toxin production. He refers to considerable differences between recent and old strains, the failure of recent strains to adhere to rigid type-specificity on subculture, and the ready growth, with pellicle formation, of the "smooth" recent strains on hormone broth. It is therefore possible that many workers in the past have failed to obtain a potent exotoxin because they have used "rough" cultures or unsuitable conditions of growth.

Preparation and Titration of Serum

Polyvalent antimeningococcus serums are prepared by injecting horses intravenously with suspensions of from four to eight strains, representative of the different serological types, and replaced every few months as more recent strains become available. The use of living cultures is emphasized by some serologists. A long course of immunization is advisable, since there is no completely satisfactory test of potency. It is true that Schwartzman[71 72] (1929 and 1931) has spent considerable time in elaborating the method which is known by his name, and which consists essentially in the intracutaneous injection of the test materials followed by an intravenous injection which makes skin reactions develop. For intravenous injection a weak solution of agar (Sickles,[73] 1933) is as useful as a specific meningococcus filtrate. The method is not an easy one to carry out, and requires a careful adjustment of the conditions; nor is there any evidence that it is an accurate measure of antibody. Murray[65] (1929) refers to the power of serum (1) to neutralize endotoxin (Gordon,[64] 1920), (2) to promote phagocytosis, and (3) to produce lysis of the meningococcus. He states that on the basis of these properties it should be possible to assess the therapeutic efficiency of a serum. Wadsworth[74] (1932) has fallen back on the agglutination test, which is admittedly unreliable, and merely indicates that horses have received immunizing injections with a number of strains. We also employ this method, and, like Wadsworth, give a potency index to each serum by averaging the agglutination titres for a few strains. Very recent work concerns the preparation of antitoxin by injecting toxic filtrates into horses (Ferry, Norton, and Steele,[67] 1931; Krestownikowa et al.,[69] 1933). The antitoxin content of the serum is apparently titratable clinically and in the laboratory.

Treatment with Serum

Ferry has claimed that antitoxin prepared as described above had a curative and protective action in guinea-pigs injected with a lethal dose of culture, while the ordinary antimeningococcal serum had little or no effect. He states that antitoxin was also of value in experimental meningococcal meningitis in the monkey. If this work should be confirmed and applied clinically to human infections a great advance will have been achieved. There is a good deal of evidence that antimeningococcal serum prepared in the ordinary way is of value clinically, but, as Topley and Wilson[75] (1929) have stated, it

> "has never been given under conditions which from a statistician's point of view could be considered satisfactory. To do this, it would be necessary to give the serum to alternate cases in an epidemic, and to treat both series of cases in other respects in identically the same way. This would mean performing a lumbar puncture on the control cases with the same frequency as on the serum-treated cases, since the effect of this measure alone appears to be of value. Until such a series is tried, we shall not be able to form a just opinion of the actual worth of the serum itself."

I give their view verbatim, for it illustrates the difficulty which the clinical observer may encounter who sets out to form a just opinion of the value of a new remedy. Methods of concentration of serum have recently been introduced, but in the absence of a satisfactory method of titration it is impossible to be certain that some essential constituent has not been lost during the process of refinement. The practical value of the concentrated product has not yet been demonstrated on a large scale. Another form of treatment which is being given a trial at present is the intrathecal injection of antimeningococcus serum to which fresh unheated human serum ("complement") has been added (Fairley and Stewart,[76] 1916; Bunim and Wies,[77] 1933). The rationale of this therapy is that, since complement is virtually absent from the cerebro-spinal fluid, and absent from antimeningococcal serum, some benefit might accrue from

making good the deficiency ; the mechanism responsible for the sterilization of the spinal fluid might possibly be assisted.

Precipitation

Zozaya and Wood[78] (1932) have stated that the soluble specific carbohydrates and "nucleoproteins," obtained from the various types of meningococci and other Gram-negative cocci, have very similar properties and are not type-specific. In their experience the precipitable substance did not appear in the serum of horses undergoing immunization until the fourth month or later. Agglutination and precipitation did not run parallel.

GONOCOCCUS

Toxic Products

Tulloch[79] (1929), writing in the *System of Bacteriology*, has stated that we have "frankly to admit ignorance of the precise nature both of the invasive mechanism and of the disease-producing mechanism of the gonococcus." Cultures, filtrates, and autolysates are all toxic to laboratory animals, the maximum toxicity being after prolonged incubation—which perhaps suggests that so-called "endotoxins" liberated by autolysis of the cocci are the essential toxic constituent.

Serums and Vaccines

As in the case of antimeningococcus serum, there is no adequate method of titration of the so-called "antibacterial" serum used in the treatment of gonorrhoea and its complications. Satisfactory evidence as to its clinical efficacy is also lacking. Vaccines may be of some value in the prevention and treatment of complications, although the published evidence does not lend itself to statistical analysis.

Precipitation, Agglutination, and Complement Fixation

I have previously mentioned that the soluble specific substances and nucleoproteins of all the Gram-negative cocci have very similar properties and are not type-specific (Zozaya and Wood,[80] 1932). As regards agglutination, serological types exist for the gonococcus as for the other organisms we have considered, but the difficulties in the technique of the agglutination reaction are considerable, and it is not always easy to reconcile the results of different workers. The complement-fixation test (see Tulloch,[79] 1929 ; Price,[81] 1930 ; Osmond and Oliver,[82] 1929) is of value in the diagnosis of gonorrhoea, but great care and experience are necessary in the technique of the reaction and in its interpretation. It is generally negative in the early stages of the disease, and positive for some time after cure has been effected. It is almost always positive when complications are present, and is therefore of considerable value in the diagnosis of arthritic and gynaecological diseases. The reaction ceases to be of diagnostic significance if specific vaccine treatment has been employed.

CONCLUSION

It will be seen from this brief review of the serology of the pathogenic cocci that considerable advances have been made of recent years in connexion with the Gram-positive group. As regards the meningococcus and gonococcus, the present position is much less satisfactory, but there are already some indications that more efficient antimeningococcal serums may become available. So far the serologist's most valuable contribution to the gonococcus problem has been the complement-fixation test.

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AN INVESTIGATION ON THE PHARMACOLOGICAL ACTION OF SOME NEW SUBSTITUTES FOR MORPHINE AND HEROIN

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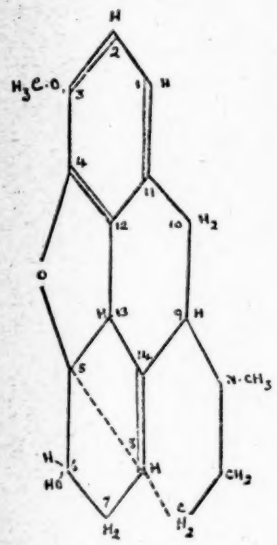
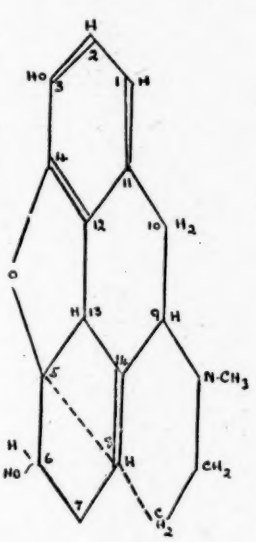
The fact that new substances akin to morphine are always being produced by the chemical industry is due to the desire to find, by means of fresh chemical combinations, a substance which is as useful as morphine but has not its harmful effects. During the past few years three new synthetic drugs have been manufactured and extensively used on the Continent as substitutes for morphine and heroin. These drugs are being manufactured in Germany, and are marketed under the trade names of "dilaudid," "dicodid," and "eukodol" respectively. The clinical literature on these drugs is fairly extensive, but little has been published with regard to their pharmacological action. Eddy,[1] however, gives an extensive survey of the literature bearing on dilaudid. The object of this investigation was to determine some of the more important pharmacological actions of these drugs and to compare them with morphine and heroin.

Dilaudid.—Chemically this is the hydrochloride of dihydromorphine. It is a derivative of morphine, and is manufactured from this source. The chemical relation to codeine, morphine, and dicodid is apparent from the following formulae. Dilaudid is a white amorphous substance which is soluble in water and alcohol but is insoluble in ether. The aqueous solution has a neutral reaction. The name "dilaudid" is a registered trade name patented by Knoll A.-G., of Ludwigshafen-on-Rhine. The

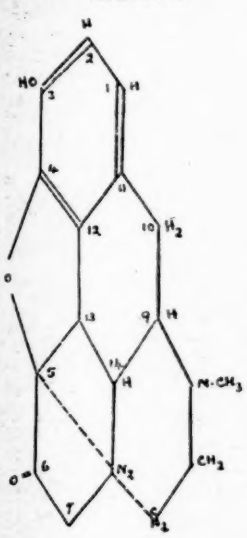
CODEINE



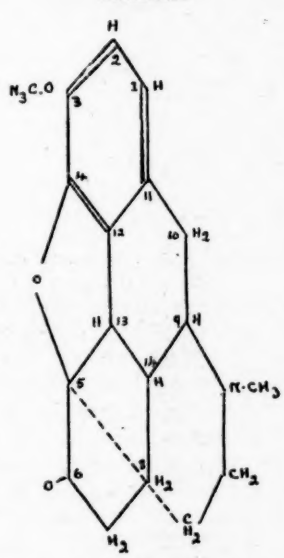
MORPHINE



DILAUDID



DICODID



drug is marketed as a substitute for morphine, and the makers claim for it an analgesic action and a quieting effect on the respiration.

Dicodid.—Dihydrocodeinone is the basis of dicodid. It is manufactured by a patent process by Knoll A.-G., of Ludwigshafen-on-Rhine. Its chemical structure shows it to be a derivative of thebaine. Since, however, it can be obtained from codeine, it must be regarded from the standpoint of production as a derivative of codeine, and so of morphine. Dicodid is the bitartrate of dihydrocodeinone. It is advocated as an analgesic and as a sedative of the respiratory tract.

Eukodol.—This drug is the hydrochloride of dihydroxycodeinone and is manufactured by a patent process by E. Merck of Darmstadt. Eukodol is not a derivative of morphine. It is manufactured from thebaine, and as opium contains but a small quantity of thebaine the amount of eukodol manufactured must therefore be very limited. No process is known for the manufacture of thebaine from morphine or codeine. It is used as a respiratory sedative and as an analgesic.

ACTION ON THE ALIMENTARY CANAL

(*a*) *Isolated Intestine.*—The small intestine of young rabbits weighing about 800 grams was used. The isolated intestine was suspended by the Magnus method in a Tyrode bath and the movements recorded on a kymograph.

Dilaudid.—In a concentration of 1 in 100,000 the drug causes a gradual increase in movements, which reach a maximum effect after about twelve minutes; no change in tone was recorded. This effect is followed by a gradual depression of both tone and movements. A solution of 1 in 50,000 rapidly produces a temporary initial increase in the movements of the intestine; this is soon followed by depression of movements and loss of intestinal tone. A concentration of 1 in 20,000 causes a rapid depression of both tone and movements.

Dicodid.—A concentration of 1 in 100,000 at first produces an increase in intestinal movements without any change of tone. Later, however, there is a depression of both tone and movements. A concentration of 1 in 20,000 causes an immediate initial increase in tone and movements, which is rapidly followed by a depression of both tone and movements.

Eukodol.—This drug has little effect upon the intestine. A solution of 1 in 100,000 is entirely without effect on the isolated intestine. One of 1 in 20,000, however, produces a gradual increase in intestinal tone, but has no effect upon the movements.

These results show that dilaudid and dicodid have a similar action upon the isolated intestine. Weaker concentrations at first stimulate the movements; this is followed by a depression. Weak solutions of these drugs have no effect upon the tone of the intestine. Greater concentrations, however, cause depression of both the movements. These effects are similar to, but much weaker than, those produced by heroin in the same concentrations. Heroin has a greater effect on the intestinal tone. Eukodol has no marked action on the isolated intestine and, in this respect, differs from dilaudid, dicodid, and heroin.

(*b*) *Intact Intestine.*—This was studied in pithed cats, which were kept alive by means of artificial respiration. A balloon recorder was placed in the lumen of the intestine and connected to a water manometer and a recording tambour. The drugs were injected intravenously via a cannula ligatured into the external jugular vein.

Dilaudid.—The intravenous injection of 1 mg. of dilaudid produces an immediate but insignificant loss of tone. After a few minutes the gut movements begin to increase. An injection of 10 mg. produces a well-marked increase in tone and movements, which may continue to increase gradually for thirty minutes or more. These increased movements are completely inhibited by an injection of 0.5 c.cm. adrenaline 1 in 20,000, or 0.5 unit of pituitrin.

Dicodid.—This drug in doses as small as 0.5 mg. causes an increase in intestinal tone and movements (Fig. 1), which can be inhibited by the injection of adrenaline or pituitrin. Larger doses of 20 mg. produce an immediate inhibition of movements, an effect which resembles the inhibition caused by adrenaline; complete recovery of both tone and movements follows in about ten minutes.

Eukodol.—Injections of 5 mg. or less have no effect whatever on the intestine; 10 mg., however, cause a marked increase in tone and movements; the intestine recovers to its normal condition fifteen minutes later.

These results agree with those obtained using isolated intestine, and clearly show that dilaudid and dicodid in small doses stimulate the tone and movements of the intestines in the same manner as small amounts of morphine or heroin. Depression of the intestine quickly

follows the injection of large doses. Uhlmann and Abelin,[2] who studied the action of morphine, hold that the effects on the small intestine are essentially similar in excised intestines and in living animals—namely, that very small doses depress the peristalsis, slightly larger doses stimulate the movements, and still larger doses produce a maximal stimulation, followed by paralysis. It will be seen that the results obtained in this investigation using dilaudid, dicodid, and eukodol closely approximate those of morphine. The early stage of depression described by Uhlmann and Abelin for very small doses of morphine was not obtained with dilaudid, dicodid, or eukodol.

(*c*) *Pyloric Sphincter and Stomach Movements.*—The movements of the pyloric sphincter were recorded by using a modified form of the apparatus described by Elliott.[3] Stomach movements were recorded by the balloon method. Cats which had been pithed and kept alive by means of artificial respiration were used, and all injections were given intravenously via the external jugular vein. The abdomen was opened and the recorder passed through an artificial opening made in the wall of the duodenum until the membrane rested in the sphincter of the pylorus.

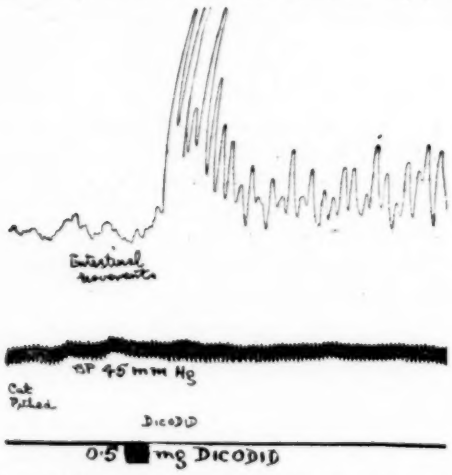


FIG. 1.—Intestinal movements and blood pressure, showing the effect of injecting 0.5 mg. dicodid.

The stem of the recorder was ligatured to the duodenum so as to prevent the apparatus slipping from the embrace of the sphincter. The abdomen was then closed and a water manometer attached to the pyloric recorder. Another manometer was connected to the balloon in the stomach, each manometer being connected to a recording tambour.

Dilaudid.—The intravenous injection of 0.5 mg. or 1 mg. of this drug produces a gradual well-marked increase in the movements of this sphincter, which reach a maximum effect after about thirty minutes. These increased movements may be continued for a period of two or three hours. At the same time the stomach movements are markedly increased, but the general muscular tone is not altered. The action on the stomach is slow and gradual, and reaches a maximum effect after about forty minutes. Larger doses of 10 mg. produce a similar effect, which is more rapid in onset and not so prolonged.

Dicodid.—The action of this drug upon both the pyloric sphincter and the stomach is so small as to be negligible. The injection of doses of 10 or 20 mg. produces only a slight increase in the tone and movements of the pylorus and the stomach.

Eukodol.—Ten mg., when given intravenously, produce a slight increase in the movements of the sphincter without any change in the muscle tone. The movements return to normal in ten or fifteen minutes. Smaller amounts of the drug have no effect, or an effect which is so small as to be negligible. The action on the stomach is similar to that of dicodid, but it is a little more marked. The movements are only slightly increased with doses of 10 to 20 mg.; the tone is not altered. Smaller doses have no effect. This feeble action of dicodid and eukodol is very similar to that of codeine.

Dilaudid is the only one of these three drugs which has a marked effect on the pyloric sphincter and the stomach, and in this respect it resembles morphine. Magnus,[3] who investigated the passage of the alimentary contents by *x*-ray methods, found that morphine acts upon the stomach, producing contraction of the sphincter antri pylori, and the pyloric and cardiac sphincters; this caused a delayed passage of food from the stomach to the intestines. Other observers[4] have shown that morphine tends to produce nausea and vomiting, and that the effect is independent of the mode of administration, the action being central. For comparative purposes it was decided to record the movements of the pylorus and the stomach, produced by morphine hydrochloride in exactly the same way as already described. It was found that an injection of 5 mg. causes a slight increase in the movements of the

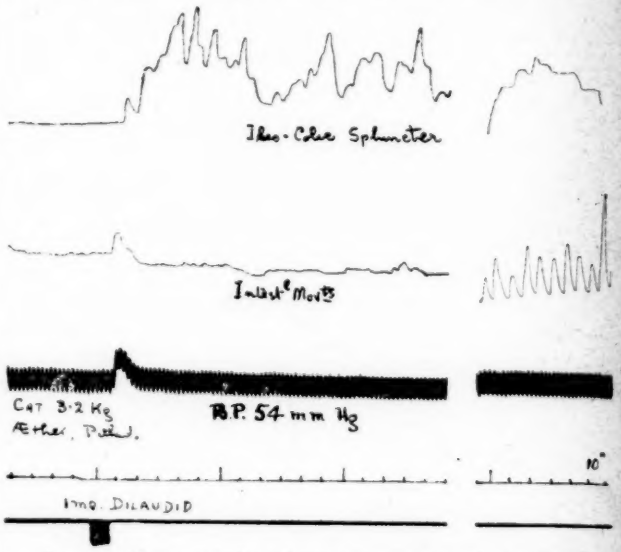


FIG. 2.—Upper tracing shows movements of the ileo-colic sphincter. Lower shows intestinal movements. One mg. dilaudid injected, six minutes interval. Time, 10 seconds.

stomach, but has little effect on the muscle tone. The movements and the tone of the pyloric sphincter are, however, increased in a most marked way. This action on the sphincter is slow and gradual, and only begins to take place two or three minutes after the drug has been injected. An injection of 20 mg., however, causes a most marked increase in both the tone and the movements of the stomach, which, when they reach a certain magnitude, result in true vomiting or retching by the animal. The pyloric sphincter shows a gradual but profound increase in tone and movements. Heroin in doses of 5 to 20 mg. increases the movements of the sphincter without altering the general tone of the muscle. This drug apparently has no effect on the stomach movements, as no changes were recorded using injections of 0.5 to 30 mg. These results show morphine to have a most active effect on the stomach and the pyloric sphincter. In this respect dilaudid resembles morphine much more than either dicodid or eukodol, which have a much weaker action.

(*d*) *Ileo-colic Sphincter.*—The movements of this sphincter were studied in cats which had been pithed and kept alive by means of artificial respiration. The method described by Elliott[3] was adopted. All injections were given intravenously via the external jugular vein. The method of recording was similar to that employed in the case of the pyloric sphincter.

Dilaudid.—One mg. when injected causes a profound increase in movements and tone, which lasts for ten to twenty minutes (Fig. 2). Larger doses of 10 mg. have a similar but

more marked effect which lasts for a longer period; it is common for the tone to be still increasing as long as thirty to forty minutes after the injection. An injection of 0.25 c.cm. adrenaline 1 in 20,000 inhibits these increased movements, but slightly increases the tone of the sphincter.

Dicodid.—This drug has an action similar to dilaudid; 1 mg. and 10 mg. produce the same effects as dilaudid.

Eukodol.—Injections of 1 mg. have no effect on the sphincter, but doses of 10 mg. cause an immediate increase in tone similar to that produced by dilaudid. These effects continue for ten to fifteen minutes, when the condition of the sphincter returns to normal.

Morphine.—The tone of the sphincter is immediately increased after the administration of 2 to 10 mg. Heroin in similar doses produces the same effects, which were found to last, in some cases, for thirty minutes or more.

These results show that dilaudid, dicodid, and eukodol increase the tone of the ileo-colic sphincter in the same manner as morphine and heroin. It is interesting to note that dicodid, which has such a weak action on the pyloric sphincter, has a well-marked action on the ileo-colic sphincter. Elliott[5] has shown that stimulation of the sympathetic nerves in the lumbar roots of the spinal column causes the sphincter to contract. He also showed that adrenaline produces the same effect as sympathetic stimulation—that is, constriction of the sphincter. It would appear from these results as if these drugs act either on the sympathetic system or directly on the intestinal muscle.

RESPIRATION

Cats anaesthetized with ether and urethane were used. Respiratory movements were recorded in two ways. First, by means of a ligature from the xiphisternum to a hook in the centre of a tambour, which was in turn attached to a recording tambour. The second method was by means of a tambour placed against the chest. Blood pressure was recorded from the right carotid artery, and the drugs were injected intravenously via a cannula ligatured into the external jugular vein.

Dilaudid.—This drug produces a most profound effect on the respiration, which becomes slower and deeper. The general effect resembles that produced by morphine. Doses as small as 0.25 mg. were found to slow the respiration from a normal rate of 70 or 80 per minute to 16 or 20 per minute, the depth being gradually increased to twice the normal amount. Larger amounts of the drug produce similar effects, but the respiration rate was never slowed to less than 16 per minute without causing complete failure of the respiratory centre in the medulla, which necessitated the use of artificial respiration.

Dicodid.—This drug has an action on respiration which is very similar to that of dilaudid and morphine. When given intravenously the breathing becomes slower and deeper. One mg. was found to slow the respiration from a normal rate of 60 per minute to 16 per minute, while the depth was increased. Similar effects were produced by larger doses.

Eukodol.—This drug has a marked effect upon the respiration. Even small doses cause a slowing and deepening, which is similar to that produced by dilaudid, dicodid, and morphine. An injection of 0.125 mg. has a most marked action; 0.5 mg. was found to slow the respiration of a 2-kilo cat from 40 to 16 per minute, and more than double the depth of respiration.

Heroin.—The action of this drug is similar; 0.5 mg. slowed the respiration from 46 to 16 per minute. The increase in depth with this amount of the drug is not so pronounced as with dilaudid or dicodid.

Toxic doses of any one of these drugs produce a serious progressive depression of the respiratory centre, as shown by the marked decrease in rate, depth, and efficiency of respiration. In each case the respiration is finally arrested before the heart is seriously injured. It is evident, therefore, that dilaudid, dicodid, and eukodol in both therapeutic and toxic doses produce an effect upon the respiration which is similar to that of morphine and heroin. An interesting observation with regard to the toxicity of dilaudid and eukodol was made as a result of these experiments. It was found that if an initial dose not exceeding 1 mg. per kilo be injected into an anaesthetized cat then the respiration becomes slower and deeper. Much larger doses of 30 to 40 mg. per injection can be now given without having much further effect on the respiration. On the other hand, if an initial dose in excess of approximately 5 mg. per kilo be given, then the respiration ceases and the animal dies. Similar observations were made with eukodol in similar doses. The explanation of this increased tolerance to dilaudid and eukodol after therapeutic doses is not apparent. One might suggest that some form of tissue immunity is quickly developed, or that the tissue cells become more able to detoxicate the drugs, or that excretion is facilitated in some way or other. Further experiments are now in progress with a view to obtaining an explanation of this phenomenon. Large doses of dicodid are tolerated well by anaesthetized cats, it being almost impossible to kill the animal with the drug. Experiments on the bronchioles of cats showed that dilaudid, dicodid, and eukodol have no action on this structure.

ACTION ON VAGUS CENTRE IN MEDULLA

Cats anaesthetized with urethane were used, and the blood pressure and the respiratory movements recorded. Both vagi were cut, and the central end of each stimulated in turn until the minimum current to produce an effect on the respiration was determined. The drug under test was then injected intravenously and the stimulations repeated. Typical protocols are tabulated below.

TABLE I.—*Cat (3.4 kilos)*
Dilaudid

	Vagus	Coil	Result
Normal	Left	30	−
		27	−
		24	+
		21	++
1 mg. dilaudid (intravenous)		30	++
10 minutes' interval ...		33	++
		36	+
		39	−

TABLE II.—*Cat (2.8 kilos)*
Dilaudid

	Vagus	Coil	Result
Normal	Right	21	−
		18	+
		15	++
2.5 mg. dilaudid		21	++
		24	++
		27	−
10 minutes' interval ...		27	−
		24	−
		21	−
		18	−
		15	++

TABLE III.—*Cat (3.6 kilos)*
Dicodid

	Vagus	Coil	Result
Normal	Left	30	−
		27	−
		24	++
1 mg. dicodid		27	++
		30	+
		33	−
10 mg. dicodid		27	+++
		30	++
		33	+
10 mg. dicodid		36	−
		30	−
		27	++

TABLE IV.—*Cat (2.5 kilos)*
Eukodol

	Vagus	Coil	Result
Normal	Left	33	–
		30	++
½ mg. eukodol...		33	–
		30	++
½ mg. eukodol...		30	+
		27	++
1 mg. eukodol		30	–
		27	+
		24	+
		21	++

The results set out in Tables I and II show clearly that the sensitivity of the central vagus is considerably increased after the administration of small doses of dilaudid. Larger doses quickly depress the vagus after a short period of initial stimulation. Table III shows that dicodid in small doses stimulates the vagal centre, while larger doses lead to depression. Eukodol appears to depress the vagus centre from the beginning, even with very small doses. Jackson and Ewing,[6] Cohn,[7] and others have shown that morphine increases the reflex excitability of the vagus centre. It is obvious, therefore, that dilaudid and dicodid resemble morphine in this respect, while eukodol is devoid of this action.

THE CORD

Dilaudid and dicodid in large doses have a well-marked action on the spinal reflexes. One large dose of either of these drugs, or several smaller doses given within a short space of time, will produce twitching of the limbs or the whole body. These twitchings, when severe, are of a convulsive nature, and can always be produced in the conscious, pithed, or anaesthetized animal. A series of intravenous injections of either of these drugs, totalling 20 mg., given within fifteen minutes, was observed to produce increased reflexes with struggles in a pithed cat weighing 2 kilos. Smaller doses of 1 to 5 mg. do not visibly affect the spinal reflexes. Nau[8] compared the effects of morphine, dilaudid, and heroin on the central nervous systems of tadpoles, frogs, toads, and fishes. He concluded that all three drugs produced paralysis and convulsions. Larger doses per kilo of dicodid than of dilaudid are required to increase the reflexes. It was found by experiment that an average cat weighing 2.5 kilos required a total of 40 mg., given in smaller doses in a series of intravenous injections, to produce twitchings. The period during which the reflexes are increased may vary from a few minutes to almost an hour, according to the amount of the drug injected. The twitchings can be abolished immediately by injecting curare or by destroying the cord. They never take place with therapeutic doses, but only when these amounts are grossly exceeded. These effects are similar to those produced by morphine hydrochloride, which is much more active in this respect than either dilaudid or dicodid. Injections of 0.5 mg. of morphine hydrochloride will produce the same effects in a cat anaesthetized with urethane as 20 to 40 mg. of dilaudid or dicodid. Heroin produces similar effects. Eukodol, in even large doses of 60 to 100 mg., has no effect on the spinal reflexes. This is not what one would expect in view of the fact that eukodol is manufactured from thebaine, which is a powerful convulsant.

BLOOD PRESSURE

The effect of dilaudid, dicodid, or eukodol on the blood pressure is so slight as to be almost negligible. Injections of 0.5 to 5 mg. of dilaudid produce a slow gradual rise of 10 to 15 mm. of mercury in twenty to thirty minutes. Larger doses, of 20 mg. or more, generally have a reverse effect—a slight gradual fall of 10 to 20 mm. The heart is generally slowed; this is of central origin. Dicodid or eukodol in doses as large as 30 mg. have little or no effect upon the blood pressure or on the heart's action. With any of these drugs the circulation remains fairly good, even after toxic doses, until death occurs by paralysis of the respiration.

EFFECTS ON THE NORMAL ANIMAL

Dilaudid

(*a*) *Small Doses.*—A mouse weighing 16 grams was injected subcutaneously with 0.25 mg. dilaudid, and the following effects were observed.

10.40 a.m.—Injection given.
10.43 a.m.—The animal quickly showed signs of restlessness, and commenced to walk around the cage in a regular, monotonous way, with its tail stiff and erect. The respiration is markedly slower and deeper.
10.55 a.m.—There is great difficulty in using the hind limbs, which trail behind. The gait resembles the hyenoid walk seen in the dog under the influence of morphine.
11.5 a.m.—Marked analgesia is present; the animal does not resent pinching of the tail, as do the control mice.
11.40 a.m.—No change.
1.25 p.m.—The animal is walking better, but is still very restless. It walks continuously round the cage in an automatic way, and does not stop to rest like the control animals. It has no interest in food or its surroundings. It does not investigate obstacles placed in its path, but at once retraces its steps without trying to find a way around it. Should the obstacle be another mouse then it persistently pushes against it until it forces a way past.
1 p.m.—The gait is returning to normal, otherwise its condition is as before. The tail is still stiff and erect.
1.30 p.m.—There is a definite improvement. The condition has almost returned to normal. The animal stops to rest, and takes an interest in food. The gait is almost normal again, but the tail is still stiff and erect.
2 p.m.—Condition normal.

These results agree with those of Schoen,[9] who observed the effects produced in rabbits after the injection of dilaudid. He records slowing of the respiration, analgesia, abolition of postural reflexes, and an increase in general muscular tone.

(*b*) *Toxic Doses.*—One mg. of dilaudid was injected subcutaneously into a 16-gram mouse.

2.30 p.m.—Injection.
2.43 p.m.—The tail is stiff and erect, respiration is markedly slower and deeper, and the mouse walks around in an automatic fashion without resting.
3.5 p.m.—The animal is now more sensitive to noise than the controls. The restlessness is still present. The hind limbs become stiff and spastic from time to time, which renders walking very difficult.
3.15 p.m.—Walking is becoming increasingly difficult.
3.30 p.m.—The gait is more spastic than before, and the spinal reflexes are enormously increased.
3.45 p.m.—The hind limbs appear to be paralysed. The animal can only move a few inches at a time, and then falls as if intoxicated, with its hind legs stretched out rigidly behind and the tail stiff into the air.
3.55 p.m.—Both hind limbs and fore limbs appear paralysed. The animal is almost unable to move.
4.20 p.m.—Great difficulty is experienced in recovering its posture after having been placed on its back. The reflexes are still very active.
4.23 p.m.—Convulsions, followed by death.

Dicodid

(*a*) *Small Doses.*—One mg. was injected subcutaneously into a 16-gram mouse:

10.45 a.m.—Drug injected.
10.50 a.m.—Tail stiff and erect. Respiration is slower and deeper. The animal walks around the cage in a manner similar to that described for dilaudid. There is great difficulty in walking. The animal stops from time to time, and rests on its belly with its hind limbs stretched out stiffly behind. There is marked analgesia present.
11.20 a.m.—Condition the same. The restlessness continues. The control mouse sits still most of the time, while the other keeps moving continuously in an automatic way.
12.10 p.m.—The paralysis of the hind limbs is passing away, and the mouse is now running around in an almost normal manner; but restlessness is still present.

2 p.m.—There is now an interest in food, and the animal is eating well.

2.35 p.m.—The condition is now almost normal again, and the animal is washing itself. It is still more active than the controls.

(*b*) *Large Doses.*—Ten mg. were injected subcutaneously into a 16-gram mouse. Death took place in fifty minutes in a manner similar to that already described for dilaudid.

Eukodol

(*a*) *Small Doses.*—A subcutaneous injection of 0.25 mg. was given to a 16-gram mouse.

10.40 a.m.—Drug injected.

10.55 a.m.—Respiration slower and deeper. There is a markedly increased activity. The mouse walks or runs continuously around the cage with its ears and tail stiff and erect.

11.10 a.m.—The condition has not changed beyond a pronounced increase in the reflexes.

11.40 a.m.—Food placed in the cage. The mouse immediately investigated it and ate a fair amount. Analgesia is present, as measured by nipping the tail.

12.10 p.m.—Condition as before.

12.45 p.m.—Condition appears normal again.

The effects produced by a subcutaneous injection of 5 mg. eukodol are almost entirely of a depressant character—apathy, stupor, and analgesia. The acute reflexes are heightened, but firm pressure, such as nipping the tail, which would be very painful in normal animals, elicits no response. There is a peculiar clumsiness and lack of co-ordination in the voluntary movements. The animal stands only with difficulty, walks unsteadily, and often drags its hind limbs in a manner not unlike the "hyenoid walk" described for morphine by Claude Bernard. The respiration is markedly slowed, and the tail erected. Complete recovery takes place later without any untoward symptoms. The effects produced in the mouse by dilaudid and dicodid are almost identical. Small doses of either of these drugs produce marked slowing of the respiration, and analgesia. Larger amounts increase the spinal reflexes, in addition. The toxicity of dicodid is very much less than that of dilaudid. Very large amounts of eukodol are tolerated by mice without any lethal effects. The stiff erection of the tail produced by these drugs has been described by Straub, as taking place in mice after the hypodermic injection of morphine or its esters. Rassers[10] described the same effect with other convulsants, but generally only with large doses. Van Leersum[11] believes this to be due to intense tenesmus of the anal and bladder sphincters, originating in the medulla and transmitted through the pelvic nerves, while Heinekamp[12] refers it to stimulation of the spinal cord.

DISCUSSION

It has been shown that the pharmacological actions of dilaudid, dicodid, and eukodol are very similar to those of morphine. Dilaudid approximates very closely to morphine, but is much more toxic; smaller amounts of dilaudid than of morphine are needed to depress the respiratory centre. Dicodid, on the other hand, seems to lie midway between morphine and codeine. Dilaudid has a well-marked action on the gastro-intestinal tract. It stimulates the movements of the intestine and stomach as well as those of the pyloric and ileo-colic sphincters. This action on the gastro-intestinal tract resembles that of heroin. Dicodid increases the movements of the intestine and the ileo-colic sphincter, but has little effect on the stomach and the pyloric sphincter. Both of these drugs increase spinal reflexes and general muscle tone. They slow the respiration and increase the amplitude by depressing the respiratory centre in the medulla; they have little or no action on the bronchioles. Eukodol differs from the others in many ways. It has a much feebler action on the movements of the alimentary tract, and does not increase spinal reflexes. It has, however, a profound effect upon respiration, which is as marked as that produced by either dilaudid or morphine. Considering that this drug is manufactured from thebaine one might have expected some signs of it being a convulsant, but none were found. On the contrary, it produced depression of the respiratory centre and a marked diminution of pain sense. It has no effect on the bronchioles. It is interesting to note that any or all of these drugs when injected into mice produce a stiffening and an erection of the tail similar to that caused by morphine.

SUMMARY

1. Dilaudid, dicodid, and eukodol have an action on the respiration which is similar to that produced by morphine. They have little or no effect upon the bronchioles.

2. These drugs produce marked analgesia.

3. Dilaudid and dicodid have a marked action upon the tone and movements of the alimentary canal. This effect is very much less marked with eukodol.

4. Small doses of dilaudid or dicodid render the vagal centres in the medulla more sensitive; larger doses depress. Eukodol depresses the centre, even in small doses.

5. Toxic doses of dilaudid or dicodid increase the reflex excitability of the cord. Eukodol does not alter these reflexes.

6. The toxicity of dilaudid and eukodol is much greater than that of dicodid. Anaesthetized cats can withstand enormous doses of these drugs provided that they are administered after a smaller therapeutic dose. An initial large dose causes death from respiratory failure.

7. These drugs have only a negligible action on the cardio-vascular system. Dilaudid causes some slight slowing of the heart, which is central in origin.

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THE TREATMENT OF ACUTE OTITIS MEDIA IN ACUTE FEBRILE CONDITIONS*

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We may assume that practically all cases of acute otitis media arising in acute febrile conditions develop as the result of a spread of infection from the nasopharynx along the Eustachian tube to the middle-ear cleft. This is particularly prone to occur in young children who have enlarged adenoids and tonsils when they develop a common "cold in the head," or suffer from any of the acute infectious fevers. It is estimated that the common "cold in the head" and influenza are responsible for more cases of acute otitis media than all the other infectious fevers combined. The percentage of middle-ear infections in influenza varies greatly in different epidemics. This is true also of all the infectious fevers, but probably about 10 per cent. of scarlet fever and measles patients

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develop an acute otitis media, about 5 per cent. of diphtheria patients, and a much smaller percentage of mumps, typhoid, and whooping-cough patients.

The Specific Fevers

1. Scarlet fever is very prone to give rise to an acute otitis media, either in the early stage of the disease or during convalescence. A sudden rise of temperature during convalescence should immediately direct attention to the ear as a probable cause of the pyrexia. The infection is liable to be fulminating and virulent, and to pass rapidly and deeply into the tissues, causing an early perforation, or even destruction of the drum membrane or a panotitis with labyrinthine involvement. Early paracentesis is called for to relieve pain, to lower the temperature, to afford free drainage of the pus which so rapidly forms, and to diminish the marked liability of spread to the mastoid and labyrinth.

2. Measles resembles scarlet fever in inducing an otitis media which may be virulent and rapid in its onset, and which may early spread to the deeper parts of the middle ear, causing mastoiditis and deafness. The membrana tympani quickly becomes red, swollen, bulging, and flesh-like ; perforation rapidly ensues, and extensive destruction of the drumhead occurs. Both in scarlet fever and in measles there is an inherent tendency in the acute otitis media to develop into the chronic suppurative otitis media, and to require mastoid operation, even though an efficient myringotomy may have been performed and early and careful conservative treatment may have been instituted and maintained throughout.

3. Diphtheria is less frequently complicated by acute otitis media than either scarlet fever or measles. When antidiphtheria serum is administered in the early stages of the disease otitis media seldom intervenes. When, however, the middle ear becomes infected with the Klebs-Loeffler bacillus the otitis media may be most intractable and resist all treatment, so that a mastoidectomy may become necessary. In view of the fact that the discharge induced by the diphtheria bacillus is alkaline, it has been suggested that treatment with an acid, such as boric or citric acid, will be beneficial.

4. Influenza otitis media is characterized by a haemorrhagic exudate into the middle-ear cleft. In many epidemics the infection shows a marked tendency to spread to the mastoid very early, and it is not infrequently complicated by meningitis, which runs a very fulminating course and ends quickly in death. Haemorrhagic bullae are sometimes formed on the membrana tympani and on the walls of the deeper part of the external auditory meatus.

5. The acute otitis media occurring in cases of typhoid, pneumonia, whooping-cough, and mumps shows no special features. It may be of the nature of an acute catarrh of the mucous membrane of the middle ear, which may resolve spontaneously, or be evacuated by spontaneous rupture or by paracentesis of the tympanic membrane ; or the inflammation may have passed on into the suppurative stage, and have produced the typical acute purulent otitis media and mastoiditis, which may be complicated by subsequent labyrinthitis or facial paralysis, or by intracranial sequelae such as meningitis, lateral sinus thrombosis, temporo-sphenoidal abscess, and cerebellar abscess, or by septicaemia.

Bacteriology of Acute Otitis Media

Streptococcus haemolyticus is the most commonly found organism in the early stage of acute otitis media. The pneumococcus is also often present, particularly in cases of influenzal otitis media, and in pneumonia. *Staphylococcus aureus* and *albus* are frequently to be found in the discharge after a few days, but they may be absent in the initial stage. *Pyocyaneus* and diphtheria bacilli are also sometimes to be found in the discharge, and a mixed bag of other organisms.

My colleague Dr. J. H. Pollock investigated the bacteriology of the discharge in fifty-three cases of acute otitis media occurring in Cork Street Fever Hospital. He found after a few weeks that *Staphylococcus aureus* was present in thirty-one cases and streptococci in only five, although many of the cases of acute otitis occurred in scarlet fever patients. Diphtheria bacilli were found in fourteen cases. Dr. Pollock drew attention to the fact that they were often present in cases of measles and scarlet fever as a coinfection.

He found that autogenous vaccines were of considerable help in clearing up the otitis media if it persisted for more than a month.

Treatment

This will naturally resolve itself into: (*a*) general treatment and (*b*) local treatment. The former will consist of treatment of the specific fever—for example, anti-scarlet-fever serum in scarlet fever patients, and antidiphtheria serum in diphtheria patients, with rest in bed in a warm, but not overheated, room, and protection from changes of temperature which might increase the nasopharyngitis. A purge should be administered, and the patient should be put on light diet in the febrile condition.

Local treatment will fall into three categories: (1) abortive ; (2) conservative, including myringotomy ; and (3) operative—mastoid operation.

Non-operative treatment is undertaken if the drumhead, though red, is not bulging. Drops of warm glycerin of carbolic should be instilled into the ear. A diaphoretic mixture or aspirin should be given to induce sweating and to relieve pain. A hot-water bag should be applied to the ear, or an antiphlogistine poultice may be applied over the mastoid and over the ear. If the membrane begins to bulge no time should be lost in relieving the tension and pain by myringotomy. Hearing is better preserved by early myringotomy than by allowing the membrane to rupture. I have ceased to employ leeches to the mastoid or to use the ice-bag.

Indications for Myringotomy

In the early stages of acute catarrhal otitis media myringotomy is not often required. Surgical treatment becomes necessary when the drumhead is red and bulging. It is even more imperative when pain and tenderness over the mastoid are well marked. Paracentesis of the membrana tympani should not, in my opinion, be delayed, particularly if severe pain persists and the temperature remains high. A free oblique incision through the posterior portion of the drum membrane is made under nitrous oxide anaesthesia. I emphasize the necessity for a free incision in order to ensure adequate drainage and to obviate too early closure. The incision is best made in a vertical or oblique direction from below upwards and parallel with the handle of the malleus through the posterior portion of the membrane, or through the most bulging portion of the membrane. A carefully made incision of the membrana tympani will almost invariably heal with complete restoration of hearing when the discharge ceases, whereas a perforation resulting from spontaneous rupture, consequent upon pressure necrosis and destruction of part of the membrane, is less likely to close.

The subsequent treatment resolves itself into the adoption of a " wet " or " dry " technique, according to the circumstances of the case and the environment and social position of the patient. For ordinary routine practice in hospital and in the out-patient department I favour irrigation of the ear with a solution of boric acid or bicarbonate of soda several times a day, according to the amount of the discharge. This should be followed by

the instillation of a saturated solution of boric acid in alcohol (boric acid grains xxx, spirit. vini rect. ʒ i, aquae ʒ i) for ten minutes, the patient's head being inclined to the opposite shoulder. This should be repeated several times a day when the discharge is profuse, and less frequently as the discharge diminishes. The technique of "dry" treatment consists in applying the end of a narrow wick of iodoform gauze to the perforation, the other end projecting through the external auditory meatus. In this way the pus is drawn off by capillary traction.

Some otologists recommend the use of hydrogen peroxide drops for clearing the pus from the external meatus, prior to using the boric alcohol drops. On theoretical grounds this treatment is anathematized by other otologists on the assumption that the pus may be driven into the mastoid cells, the bacteria-laden discharge sitting loosely, so to speak, on the surface of the bubbles of oxygen as the peroxide is disintegrated in the tympanic cavity. A somewhat similar charge might be levelled, with equal cogency, against the use of the syringe, for surely the pus is conveyed by syringing through the perforation in the membrana tympani into the tympanic cavity. It is sometimes found that the fluid escapes into the nasopharynx along the Eustachian tube, and if it can pass so readily into the Eustachian tube, which communicates with the tympanic cavity anteriorly, it can pass almost as easily into the mastoid antrum posteriorly. To my mind these are purely hypothetical objections; in actual practice such spread of the infection is not likely to occur, but I would like to hear the opinions and experience of subsequent speakers on this point.

Politzerization and Inflation

In order to restore the hearing after an attack of acute otitis media, politzerization, or inflation through the catheter, may be carried out, but this should not be resorted to during the acute stages of the inflammatory process, and certainly not before perforation of the drum membrane has occurred spontaneously or by paracentesis, as I feel that infection may be carried to the mastoid antrum and to air cells which may not be infected already. Acute otitis media is very liable to periodical recurrence, particularly when the patient is suffering from large adenoids and tonsils. If, therefore, the attack is prolonged and the discharge does not cease, the offending adenoids and tonsils should be removed, particular attention being paid to lateral extensions of adenoids, which occupy the fossae of Rosenmüller behind the Eustachian tubes. Other pathological conditions in the nose, such as polypi, deviated nasal septum, and sinus suppuration should also be effectively dealt with to obviate a return of the acute otitis media.

Acute Purulent Otitis Media

It is not known what determines the type of middle-ear infection which ensues from infection with a given organism. Indeed, the acute purulent otitis media is probably only a later stage of the acute catarrhal otitis media which has not resolved. This is borne out by the well-established observation that on paracentesis of the drumhead in a case of acute catarrhal otitis media the discharge at first may be purely serous, and in twenty-four hours may be profusely purulent. It is probable that in all cases of acute otitis media the mastoid antrum is involved to a greater or lesser degree. It is certainly unlikely that when the tympanic cavity is full of catarrhal or purulent fluid some will not escape into the mastoid antrum through the aditus. Whether the mastoid antrum and air cells then merely act as an overflow reservoir, or become infected and give rise to a typical mastoiditis, will depend upon the virulence of the infecting organism and the immunity of the patient and the local resistance of the mastoid.

In the acute purulent otitis media the pus is specially prone to travel back into the mastoid antrum. It may be several days before the tympanic cavity is distended and the drum membrane bulges outward. Moreover, paracentesis of the membrane may not afford the immediate relief which occurs in the case of acute catarrhal otitis media. Myringotomy must be performed in the very earliest stage of acute purulent otitis media. In spite of all our efforts to afford ample drainage of the tympanic cavity by myringotomy, and notwithstanding careful attention to the details of disinfecting the middle ear by syringing and antiseptic drops, the mastoid only too frequently becomes involved in the suppurative process. Indeed, the mastoid in all likelihood is infected in all cases of acute otitis media to some extent, but in many cases it may be drained effectively through the aditus, as the inflammation subsides, without operation on the mastoid.

Indications for Mastoidotomy and Mastoidectomy

As we have seen, the mastoid is often involved early in cases of influenza, scarlet fever, and measles where the organism is virulent and the patient's immunity is lowered. When there is a free discharge through a perforation of the membrana tympani, but severe pain persists and the temperature does not subside—particularly if there is marked tenderness to pressure over the mastoid antrum or tip, accompanied by oedema, redness, and swelling over the mastoid, together with a bulging of the postero-superior wall of the meatus in close proximity to the drum—we may with safety conclude that the mastoid is not being adequately drained, and must therefore be opened.

These are the cases of manifest mastoiditis which cry out for operation, but there are many in which the indications for operation are not so apparent and obvious. Thus we not infrequently find some pain and mastoid tenderness in early acute otitis media which are rapidly relieved by timely paracentesis and conservative measures. The patient is not acutely ill, and the temperature gradually subsides with the provision of adequate drainage by myringotomy. If, however, there is any doubt in the mind of the surgeon it is far safer to operate than to allow the patient to run the grave risk of intracranial complications by ill-judged procrastination.

Simple Mastoid Operation

In most cases of mastoiditis complicating acute suppurative otitis media, some form of simple mastoid operation will suffice. The radical mastoid operation will be unnecessary, except in those comparatively rare virulent cases in which rapid necrosis of the labyrinth or of the tegmen tympani takes place and intracranial complications have already intervened.

Many variations in the technique of the original Schwartze operation have been introduced by different otologists. In fact, we may almost say "Quot homines, tot sententiae." The essential fundamental principles to be aimed at, however, are free drainage and the removal of all necrotic bone. It behoves us, therefore, thoroughly to open up the mastoid antrum, and to extend the operation to include all infected mastoid cells right down to the tip cell, which will frequently be found to be filled with pus, even though the intervening cells may appear to be comparatively healthy. If the bone below the middle cranial fossa is infected it must be removed to expose the dura. The same applies to the bone over the lateral sinus, where more infected cells may be found.

Cells at the root of the zygoma above and superficial to the mastoid antrum must also be attacked, and in like manner must the post-facial cells which lie behind the descending portion of the facial nerve be exenterated. Neumann's advice is: "Be radical in the conservative mastoid operation."

If we are entirely satisfied that all infected cells have been completely freed of pus and graulations we can now allow the cavity to fill with blood clot and suture up the mastoid wound without drainage, or a small silkworm-gut drain may be inserted into the lower end of the wound for twenty-four hours. In this way primary healing will take place in those cases in which the patient's general resistance has not been too severely sapped by a virulent infective fever. Most surgeons, however, prefer to act on the principle of "safety first"; they leave the mastoid incision partly open and drained by tube or gauze wicks.

The adaptation of Heath's conservative mastoid operation, in which the mastoid incision is completely sutured and the cavity drained with a tube through the posterior wall of the external auditory meatus after removal of much of the posterior bony wall of the meatus, commends itself to some otologists.

If there has been any exposure of the dura of the middle fossa or lateral sinus by the disease, and the dura is covered with granulations, and particularly if the patient is suffering acutely from toxaemia of the infection, it is certainly preferable to leave the wound widely open and to afford adequate drainage by tube or gauze wicks inserted in parallel strands and not packed tightly in the cavity. It is a safe procedure to treat the bony cavity with bipp, which also has the added virtue of facilitating the removal of the gauze wicks and diminishing the pain of the early dressings. The tube or gauze wicks may be changed in three days, and thereafter daily or every second day. As the discharge becomes serous they may be dispensed with and the cavity allowed to close. In this way healing will be complete in about three or four weeks, and the hearing power in most cases will be restored to normal and the perforation of the drum will be closed. This should be the ideal aimed at; and if properly and honestly aimed at it will be achieved.

Summary

In the early stage of acute otitis media abortive measures, such as rest in bed, administration of a purge, steam inhalations of friar's balsam, drops of warm glycerin of carbolic, a rubber hot-water bag to the ear, may suffice to bring about resolution and cure. If this is ineffective the drum membrane should be freely incised and adequate drainage of the tympanic cavity and of the mastoid antrum, via the aditus, afforded. This may bring about a restitution to normal of an infected mastoid. If temperature persists in spite of adequate drainage, and mastoid pain and tenderness increase, and the patient is obviously not improving, mastoidotomy becomes imperative, and should not be unduly delayed. By adopting such a definite course we may hope to avert the onset of the more serious complications of otitis media—namely, meningitis, lateral sinus thrombosis, cerebral and cerebellar abscess, facial paralysis, labyrinthitis, and deafness, the treatment of which is outside the scope of this paper.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

PERFORATED GASTRIC AND DUODENAL ULCER

A Survey of Fifty Consecutive Cases

During the period 1927 to 1931, I operated on fifty cases of perforated ulcer of the stomach and duodenum, and from a survey of these some interesting features emerge. These are recorded as under:

Sex.—Of the fifty cases all were males. In 1906 the late Professor Caird[1] of Edinburgh published a series of twenty-five consecutive cases of operation for perforated gastric and duodenal ulcer, and of these fifteen were females and ten males. Hamilton Bailey[2] in ninety-three cases had only nine females with perforated ulcer.

Age.—The average age was 39½ years, the oldest being 67 and the youngest 16.

Previous Symptoms.—Thirty-seven of the patients had suffered from previous attacks of stomach trouble, and the other thirteen denied any prior gastric symptoms.

Previous Treatment.—Out of the total number thirty-two had been treated by dieting and medicine, and twenty-four had been told that they had a gastric or duodenal ulcer.

Situation and Type of Ulcer.—In all cases the ulcer was chronic in type, and was situated on the anterior aspect of the stomach or duodenum. The situation of the ulcer in the fifty cases was: proximal to the circular vein of Mayo, 11; first part of the duodenum, 39.

Time between Perforation and Operation.—The number of hours perforated worked out at an average of nine. Fifty-one hours was the longest period perforated, and there were eleven cases in which the man was operated on within four hours of perforating. Details are shown in Table I.

Table I

No. of Hours Perforated	No. of Cases	No. of Deaths
3–12	41	2
13–24	5	0
25–51	4	2
Total	50	4

Type of Operation and Mortality.—The cases have been divided into three groups, according to the type of operation performed, and the mortality rate for each group is shown in Table II.

Table II

Group	Type of Operation	No. of Cases	Deaths	Mortality per cent.
1	Closure of ulcer with drainage of abdominal cavity	32	2	6.2
2	Closure of ulcer without drainage	5	0	nil
3	Closure of ulcer with drainage and gastro-jejunostomy	13	2	15.3
	Total	50	4	8

This gives a general mortality of 8 per cent. for the fifty cases.

Fatal Cases.—These are shown in Table III.

Table III

No.	Age	Hours Ill	Operation	Site of Ulcer	Day of Death
1	29	6	Closure of ulcer and gastro-jejunostomy	Duodenal	8th
2	58	48	Closure of ulcer	Duodenal	3rd
3	38	14	Closure of ulcer and gastro-jejunostomy	Duodenal	10th
4	46	25	Closure of ulcer	Gastric	2nd

In all four fatal cases drainage of the abdominal cavity was employed, and all had a general anaesthetic. The cause of death in three cases was bronchopneumonia, and in the fourth peritonitis.

Post-operative Complications.—Two cases developed right subphrenic abscess, and both recovered after further operation for drainage of the abscess. Two cases had recurrence of symptoms and required gastro-enterostomy. One case perforated a duodenal ulcer a second time one year after his first operation. One case developed acute appendicitis two years after operation.

Type of Operation.—The simpler the operation the better. In the last nine cases I used local infiltration with 1/2 per cent. novocain as an anaesthetic, the patient having received 1/3 of a grain of morphine half an hour previously. The ulcer is closed with through-and-through catgut stitches, and a piece of fat from the omentum is fixed over the suture line. If drainage is required, this is done by suprapubic incision made under local anaesthesia. The upper incision is closed in layers, and a drain of soft rubber left down to the peritoneum. "Pressoplast lace" dressing is applied.

SUMMARY

The important points emerging from this survey have often before been emphasized—namely:

1. The simpler the operation the better.
2. The methods and skill of the surgeon are not a very important factor (Rendle Short).[3]
3. The time factor is the important one.

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AN UNUSUAL PHARYNGEAL ABSCESS

I report the following case because I have never met an abscess in this situation, and because there were no definite signs—such as pain, tenderness, or swelling—whereby one could diagnose it. Moreover, the pyrexia, and such illness as the patient had, appeared sufficiently accounted for by the erysipelas.

A man, aged 24, was admitted into the Tolworth Isolation Hospital on June 2nd, 1933, with a diagnosis of erysipelas and a history of sore throat of ten days' duration. He had been in the Surbiton Hospital since May 17th for appendicitis.

On admission he did not appear very ill. There was swelling and redness over the bridge of the nose extending on to the right side of the face, with a few small blebs on the erythematous base; his tongue was furred, the fauces somewhat reddened, the temperature 102.4°, pulse 104, respiration 22. During the next four days his temperature swung between 102° or 103° in the evening and 98.4° or 99° in the morning, and there was extension of the erythema on the forehead and oedema of the left upper eyelid. On June 7th he complained of some difficulty in swallowing, but nothing could be seen in his throat to account for it. His neck was symmetrical and his chest normal. On the evening of June 8th he seemed comfortable, and took two tumblers of milk during the night. At 6 a.m. on June 9th his temperature was taken. A few minutes later he called out that he was going to choke, became black in the face, and died.

Post-mortem.—Pus was found on each side of, and a little behind, the thyroid cartilage, and an abscess track connecting the two passed between the larynx and pharynx, there being about three drachms of pus altogether. There was no obvious compression of the larynx or pharynx, though there was considerable oedema of the pharyngeal mucous membrane.

Surbiton. HARRY COOPER, M.D.

British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

A CLINICAL STUDY OF EPIDEMIC CEREBRO-SPINAL FEVER IN CALCUTTA

At a meeting of the Calcutta Branch, held on March 11th, Dr. U. P. BASU read a paper on the above subject.

He said that during 1932 thirty-three cases of cerebro-spinal meningitis were admitted to the Calcutta Medical College Hospitals. As the disease was not common in that part of the world it had been thought worth while to collect and analyse these cases, an examination of the records of which revealed the following features.

Epidemiology

Five cases were admitted in February, twelve in March, two in May, one in June, two in July, seven in October, one in November, and three in December. Although the word "epidemic," used in the title of the paper, was not a happy expression, he was convinced that the cases recorded constituted two definite outbreaks of a small epidemic of cerebro-spinal meningitis in Calcutta. An epidemiological graph showed two peaks, the larger in March and the smaller in October. There was a period of complete lull during the months of August and September. Seeing that cerebro-spinal meningitis was a disease of winter and spring, the fresh outbreak in October was a novel feature of the epidemic. Further evidence in support of the epidemic nature of last year's cases could be obtained from a comparative study of the records of the Calcutta Medical College Hospitals for the three previous years. Thirty-one out of thirty-three cases in the present epidemic occurred within the jurisdiction of the district of Calcutta, and twelve of these were of the fulminating type. There was no occasion in which more than one case occurred in the same family, and in one instance only two cases occurred in the same street, but in different houses. As cerebro-spinal meningitis was a disease with a low degree of infectivity, and as the actual manner of spread was by droplet infection from carrier to carrier, and finally to susceptible individuals, one could easily understand why the infection appeared to be distributed in a scattered way throughout the city, and why there was no spread of infection among the remaining patients of the wards of the hospital. Instead of the disease being limited to infants, young children, and young adults—as in the sporadic cases—nearly one-third of the victims of this epidemic were of 30 years of age and upwards. Of the affected individuals twenty-seven were males and six females. Out of these, twenty-two were Hindus, seven Mahommedans, two Jews, one Anglo-Indian, and one "unknown."

Pathology and Bacteriology

In one case where blood culture was done there was no growth. Within a few hours of the onset of the disease, in many of the fulminating cases of the series, the cerebro-spinal fluid was turbid, pus cells were present, and necropsy showed evidences of meningeal involvement. Blood examination showed polymorphonuclear leucocytosis, varying from 11,000 to 23,000 per c.mm., except in eleven cases where the leucocyte count was below 10,100 per c.mm. In two cases the count went up to 32,000 per c.mm. and 55,000 per c.mm. Cerebro-spinal fluid was under pressure in all cases but one, clear in one case, opalescent in four, turbid in twenty-five, haemorrhagic in two, and in one case it was sometimes clear, sometimes turbid, and sometimes tinged with blood. In two cases with recovery, cerebro-spinal fluid was turbid at first and clear later. Smear examinations of the cerebro-spinal fluid showed Gram-negative diplococci in seven cases, extracellular diplococci in one case, intracellular diplococci in three cases, and both in one case.

Pus cells were present in all but one. Culture of the cerebro-spinal fluid showed growth of meningococci in three cases only. Curiously enough, urine examination revealed albuminuria in seven cases—unquestionably a rare finding in this disease—instead of the commoner glycosuria. Pus cells were found in the urine in three cases, red blood cells in one, and bile pigment in one.

Symptomatology

Among the invasion symptoms vomiting was fairly common. Headache was complained of in twelve cases. As usual, the fever conformed to no particular type, and was irregular. One of the notable clinical features was the rapid loss of consciousness, even with a mild fever of few hours' duration. In the septicaemic stage, petechial or purpuric rashes on the trunk, and blotchy erythema on the extremities were absent, except in one case. There was a singular instance of painful symmetrical arthritis without effusion involving the various joints, and another instance of asymmetrical arthritis with effusion affecting one big joint. In those cases where the meningeal picture predominated there were not many evidences of implication of the cranial nerves, such as strabismus, ptosis, and nystagmus. In such cases the symptoms were chiefly referable to irritation of the roots of the spinal nerves, but there was actually no peripheral paralysis, excepting facial paralysis in one case only. Two fairly constant physical signs were rigidity of the neck, present in twenty-eight cases, and Kernig's sign, present in twenty-six cases. The deep reflexes varied, and knee-jerks were exaggerated in fourteen cases. Pupils were dilated in seven cases, contracted in seven, and unequal in one case.

Diagnosis

It is true that meningococcus could be grown in only three of these cases, yet a diagnosis of meningococcal meningitis was given in another twenty-eight cases on the strength of predominance of pus cells, and in some cases of Gram-negative diplococcus. If it was remembered that the meningococcus died rapidly outside the body—unless kept at blood heat in the specimens collected for laboratory examination—that it was chiefly phagocytized by the polymorphonuclears, and that it might not be demonstrated owing to its being subject to autolysis, there should not be any objection to such a diagnosis. Where the cerebro-spinal fluid presented a predominance of pus cells and contained no organisms, the infection would surely be meningococcal. Had it been due to any other pyogenic cocci they would have invariably shown themselves during the time of examination. Dr. Basu expressed his belief that if a routine blood culture were made—5 to 10 c.cm. of blood being employed for the purpose, and the culture repeated from day to day—a positive result could be obtained at least in a larger number of cases than was obtainable from cerebro-spinal fluid culture.

Prognosis and Treatment

Twenty-six patients died ; three of them lived for only twelve hours, nine lived for twenty-four hours, two for forty-eight hours, four for three days, four for four days, two for five days, one for six days, and one for sixteen days. Six patients recovered, and the remaining one was taken away from the hospital by the relatives. In most of these cases where the patient lived sufficiently long for a correct diagnosis to be made, and the condition was not altogether hopeless on admission, treatment was carried out by regular lumbar puncture, according to the needs of the case, and by the administration of the specific antiserum intrathecally, combined with intravenous injections. Hexamine was also given a fair trial in a number of instances. Study of these cases led to the conclusion that the moment they came under treatment, and before typing was possible, it was desirable to inject 50 to 100 c.cm. of the multivalent antimeningococcal serum, warmed to body temperature, and slowly administered intravenously—this to combat the septicaemia. At the same time 20 c.cm., warmed to 100° F., should be run in intrathecally daily, through a tube and funnel, after the preliminary removal of a larger amount of cerebro-spinal fluid. If necessary, the patient should be anaesthetized with chloroform, the foot of the bed having been raised, and the pulse and respiration watched. There was often a fall of blood pressure during the intrathecal administration. Treatment should be stopped when the fluid became free from meningococci and glucose reappeared. In the case of thick, purulent exudate it might be necessary to irrigate the theca with normal saline or 3.8 per cent. solution of sodium citrate, to prevent adhesions. If spinal block was present and clear fluid was obtained by lumbar puncture, serum could be administered by cisternal puncture. In children the anterior fontanelle should be utilized for this purpose. Intragluteal injection of 1 c.cm. of the turbid spinal fluid obtained by lumbar puncture was worth a trial. Experience forbade the administration of hexamine by any route. At the beginning of the epidemic the speaker obtained the sanction of the then principal of the Calcutta Medical College, Colonel D. P. Goil, I.M.S., for trying the effect of serum prepared from the local strains isolated from the patients of the hospital, and requested Captain N. N. Dutt, managing director of the Bengal Immunity Company, to type the organism and prepare the serum. The Bengal Immunity Company readily complied with this request, and, as the result of their labours, found out that Type IV was mainly responsible for the epidemic, and Type II partly. They put on the market antiserum prepared from the local strains. It was very difficult to give an opinion as to the efficacy of this serum at this stage. There was no foundation for the statement that imported antimeningococcal serums had been found unsatisfactory in the treatment of this disease. As far as his cases were concerned, he thought that the imported serums from reliable houses stood the tropical climate quite well, and gave excellent clinical results. All the cases that recovered were treated with polyvalent antimeningococcal serum from the Pasteur Institute, Paris. As regards results, he drew attention to the large number of fulminating cases in the evolution of an epidemic, and to the consequent heavy mortality. He also stated that perhaps the amount and route of serum administration were not wholly satisfactory in his cases.

In conclusion, Dr. Basu expressed his sincere thanks to Colonel J. D. Sandes, Colonel J. C. De, and Captain P. Ganguli, of the Calcutta Medical College Hospitals, for kind permission to publish their cases. Also to the authorities of the Campbell Hospital for permission to follow up the cases transferred to that hospital, and to the past and present members of his house staff for their kind assistance in compiling the records of the cases.

In the last annual report of the Institute for Medical Research at Kuala Lumpur the Director, Dr. A. Neave Kingsbury, records progress in connexion with the investigation of malaria and tropical typhus. The incidence of the latter disease is increasing in Malaya, and much remains to be done in the campaign against rats. The experimental prophylactic vaccine prepared by Dr. Anigstein proved to be disappointing. It may have some prophylactic value, but any consequent immunity appears to be very transient. Evidence was obtained that non-specific Kahn and Wassermann reactions might follow malarial infection, though less often in the case of the Kahn test. There seemed to be some correlation between the degree of positivity and the intensity of the infection. It is pointed out that this is a matter of importance to those who are undertaking the treatment of syphilis, for among the indigenous population it is not unusual to find a high parasite count in the absence of fever. When positive serological reports are received in respect of patients who do not present clear clinical pictures of syphilis it is deemed advisable, therefore, to examine a blood film before commencing antisyphilitic treatment.

Reviews

A RADIOLOGICAL STUDY OF THE DIGESTIVE TRACT

Dr. A. E. BARCLAY'S book on *The Digestive Tract*[1] is a radiological study of the anatomy, physiology, and pathology of the alimentary canal, not only embodying an up-to-date statement of our knowledge of the subject, but bearing the impress of the author's own views and considered opinions. Several chapters are given up to a description of the surface anatomy of the digestive organs shown by means of shadow photographs superimposed on photographs of the patient. Dr. Barclay has himself been a successful contributor and a pioneer in this method of approach. There are many difficulties involved, principally because the path of the rays that have produced the shadow picture is divergent, thus bringing about distortion, and because the slightest deviation from the true antero-posterior position in either series of photographs at once disturbs the relationships. Nevertheless considerable advances in the surface anatomy of the digestive organs have been made. The old idea of fixity of position has given place to a knowledge that there is wide normal variation in their relations both to the surface and to each other. It was early observed by radiologists, for instance, how much the tone of the stomach is affected by emotion and by stimuli from sensory organs, such as a sudden noise or bad odour ; and, on the other hand, no causal relation can be made out between the form and position of the stomach and colon and the digestive symptoms. Many of the teachings of the textbooks of physiology need modification in the light of radiological observations. It will be allowed that, though many of the pioneering physiological experiments were made on anaesthetized animals, strictly physiological conditions may not be obtained in patients who have fasted for at least twelve hours and then taken an unaccustomed fluid meal in a darkened room. Many more observations are needed on healthy people taking ordinary meals made visible by added radio-opaque metals ; but in view of the risks both to observer and to patient, which Dr. Barclay has so carefully pointed out, these should be carried out only by a trained and skilled radiologist.

For the pathological half of the book there can be nothing but praise. Here the young radiologist will find excellent guidance in obtaining and interpreting *x*-ray pictures and in avoiding pitfalls ; while the experienced worker will be specially interested in Dr. Barclay's considered opinions on many of the outstanding problems. The intensive study of the mucous membrane of the stomach has led in modern times to a frequent diagnosis of gastritis, and this has been partly confirmed by observations with the gastroscope and by sections cut from parts of the viscus surrounding an ulcer that has been excised. The author points out the capacity of the muscularis mucosae for response to local and remote stimuli and for producing changes that may be well within the limits of normality, and he suggests that radiologists should exercise restraint in this new and precise method of investigation, at any rate until they have adequate proof that the changes they see and believe to be pathological do in fact consistently represent the conditions to which they are ascribed. His own studies of the mucous membrane in students are enough to assure him that a very wide range of changes in the mucous membrane pattern of the stomach is met with in normal healthy subjects. In the same tenor Dr. Barclay remarks on the radiological diagnosis of colitis, which he suggests should not be made unless the symptoms are fairly definite, and unless there is rigidity or tenderness over the suspected colon, and the observations are definitely confirmed. Dr. Rowden has contributed largely to the excellent chapter on the gall-bladder. In this and in all parts of the book the illustrations are sufficient and illuminating. In useful appendices the installation and running of an efficient radiological unit under varying conditions are adequately discussed.

Dr. Barclay's book is timely, and will meet a real want in present-day literature. Its appeal to the scientific worker in anatomy and physiology is not only as a summary of the results already obtained, but as a stimulus to further lines of research. Radiologists will use it as a textbook in their subject and for reference on all matters pertaining to the investigation of diseases of the digestive system. To the practitioner it offers an adequate and temperate statement of the present position of radiology applied to the alimentary tract.

[1] *The Digestive Tract*. By A. E. Barclay, O.B.E., M.A., M.D., D.M.R.E. London: Cambridge University Press. 1933. (Pp. xxviii + 395 ; 275 figures. 36s. net.)

NEUROPATHOLOGY

"The nervous system is so intricate in its details of architecture, and so esoteric in its cellular types, that it presents considerable difficulties to the one who would study its changed appearances in disease. Indeed, it has jestingly been said that pathologists know all about all the diseases of all the organs—except the most important." With these words Professor WALTER FREEMAN introduces his little book on *Neuropathology*,[2] in which he seeks to set down in a concise form the pathological changes of gross or finer structure which are found in diseases of the nervous system. It is a record of considerable achievement. During the past ten years neuropathology has broadened out from the comparatively narrow lines on which it was based at the beginning of the century, and by the discovery of new cell types, by the study of new or rare forms of disease, and by the application of the experimental method, has achieved notable advances. This work has been stimulated partly by outbreaks of acute nervous disease such as encephalitis lethargica, acute disseminated encephalomyelitis, and poliomyelitis, partly by the application of silver impregnation methods to the neuroglia, and partly by parallel advances in the study of the normal by anatomists and physiologists.

Indeed, the pathology of the nervous system is now so vast a subject that there are few who are equally conversant with all its branches. The clinical neurologist is still more concerned with the localization of lesions than with their nature, although he is coming to realize the importance of the latter. The surgeon is chiefly interested in the study of tumours of the brain, especially the gliomata. Meanwhile, the experimentalist has been busy with research on the neurotropic viruses, on the manifold problems connected with the cerebral vascular system and, more recently, on the metabolism of the brain lipoids, and on the changes in the brain produced by metabolic anomalies elsewhere in the body. That the advances made along these varied lines have in very few instances reached this final objective makes them the more difficult to follow, and a statement of the actual position issued from time to time by authorities on the subject is therefore welcome.

Such a statement might well be expected from the professor of neurology at the George Washington University, and we are a little disappointed that in this book

[2] *Neuropathology*. By Professor Walter Freeman, M.D. The Anatomical Foundation of Nervous Diseases. London and Philadelphia: W. B Saunders Company. 1933. (Pp. 349 ; 116 figs. 20s. net.)

he has strictly confined himself to a description of cellular alterations in disease. Undoubtedly the method of presentation had to be carefully selected if the book was to be kept within small bounds, and within his chosen field he is clear and concise, but we should have welcomed a wider treatment in which pathogenetic principles were also discussed. Even when these are still hypothetical they crystallize our thought, help our memory, and generally illuminate the subject. The fact that these principles have usually been founded on experimental work on animals does not necessitate their exclusion from a book on human pathology, and it is a matter of real regret that they have been so rigidly omitted here.

For the rest we have little fault to find with the book. The illustrations, which form so essential a part of a work on pathology, are well chosen and well reproduced. The author's own researches on infections of the brain by torulae and blastomyces are usefully summarized, and there are valuable chapters on intoxication and on the pathology of the dementias. In its scope the book is suited to the needs of the senior student, who will find the glossary of unfamiliar words used in neuropathology a real boon.

POSTURAL ABNORMALITIES

Dr. WINTHROP MORGAN PHELPS and Mr. ROBERT KIPHUTH of Yale, in the introduction to their small work on *The Diagnosis and Treatment of Postural Defects*,[3] refer to the complexity of the causes and to the difficulty of the establishment of a normal standard from which deviations may be measured. They point out that the posture of the most successful athlete is not necessarily the best from the point of view of efficiency, and they attempt to ascertain by theoretical considerations what should be the ideal. With this attempt we sympathize, but we do not think that the authors have succeeded in showing what is the normal of various postures, or that the means recommended are bound to produce the ideal results. In such inquiries it is too often difficult to separate cause and effect, and to say whether symptoms of lordosis, for instance, are to be attributed to bony displacement or to muscular inefficiency. Study of a large number of college freshmen showed so much prevalence of postural faults that the authors were led to the conclusion that treatment ought to be systematically undertaken in secondary schools. The second part of the book deals with the exercises which have been found statistically to give the highest percentage of correction.

The subject matter dealt with throughout this book includes much which we can hardly admit as postural. Indeed, the interests of Dr. Phelps as an orthopaedic surgeon seem to have led him to stray beyond the limitations implied by his title, while at the same time he leaves untouched some of the points with which he might be expected to deal. The exercises depicted are no doubt likely to be useful, but they would be more so if it were more clearly stated with what object each is undertaken and what effect it may be hoped to produce. Certain terms seem to be employed loosely. For example, scoliosis seems to be used as the equivalent of lateral curvature, yet we have found no mention of that rotation of vertebrae which is such a characteristic of scoliosis, but not necessarily of lateral curvature. We must confess that we are entirely at a loss to understand what is meant by the statement that the old-fashioned gymnastic exercises were "subjective activities" and what it is that entitles the newer exercises to be called "objective." These and some vague terms have made us occasionally doubtful of the authors' meaning, and we must crave indulgence if we have misinterpreted it. We have been disappointed in a search for some reference to postural tone of muscles and the means of increasing it, on which permanent improvement of attitude must so much depend.

[3] *The Diagnosis and Treatment of Postural Defects.* By Winthrop Morgan Phelps, M.A., M.D., and R. J. H. Kiphuth. London: Baillière, Tindall and Cox. (Pp. xiv + 180; 108 figures. 23s.)

THINKING AND DOING

Thinking and Doing,[4] by Dr. HARRY ROBERTS, is as readable, thought-provoking, and (notwithstanding its small compass) comprehensive an introduction to psychology as boys and girls of 15 and upwards—for whom, according to the publishers' statement, it was written—could ever hope for. Even older readers, not excluding some who would claim familiarity with the fundamentals of modern psychology, may obtain from this book (to quote from the preface) "a summary of facts which, although not universally realized, must be taken into account if we are to form sound opinions about human life and its manifestations"; and for them, no less than for younger readers, there may be both profit and pleasure in questioning with the author "the foundations of some psychological dogmas which are too often pronounced with an air of pontifical infallibility." This must not be taken to mean that Dr. Roberts ignores or is hostile to the teachings of traditional psychology, or even of those countless systems that compete for the honour of being "the new psychology." But he gets on as best he can without their jargon—even without such established favourites as the unconscious, the censor, extroversion, introversion, regression, transference, and narcissism—and manages somehow to offer a reasoned interpretation of human behaviour without once having recourse to the Oedipus complex, the libido, masculine protests, or indeed any of the psychological reach-me-downs that are now made to fit persons of all shapes and sizes.

Perhaps the most noteworthy achievement of *Thinking and Doing* is in the ingenious and plausible way in which it relates man's thoughts and actions to analogous, and in an evolutionary sense antecedent, phenomena in the rest of animal creation.

> "Many people," says Dr. Roberts, "and I am one of them, have come to the conclusion that even the very lowliest animals of all are conscious of their every activity, and that we superior creatures are distinguished, not so much by possessing the faculty of consciousness, as by the very large number of acts necessary to our life that we perform almost unconsciously, thus leaving the centre of our consciousness free for purposes of a higher order. . . . Probably some intelligence is involved in every act we call instinctive, and some inherited instinct involved in every act or thought we call intelligent."

Thus he derives the impulse to kill animals from the hunting which formed a link in the instinctive chain that helped primitive man to appease his hunger; and he points to similar biological relations between, for instance, "the itch for acquiring and collecting things, apart from their immediate use," and the squirrel's habit of forming a store of nuts and seeds before the winter hibernation; or between the "constructive instinct" and nest-building; or between *wanderlust*—the periodical fits of restlessness that drive people far afield, even into conditions of extreme physical hardship and discomfort—and the necessary impulse of primitive man "to wander far and wide in order to collect his food"; or between the susceptibility of most persons to the influence of leadership and the need for such a tendency in herd animals living in constant danger. There is, it must be confessed, a moral to this emphasis upon the affinities between human and animal behaviour:

> "Conventional folks who talk about animals acting through instinct, whilst claiming that man, even when apparently

[4] *Thinking and Doing.* By H. Roberts. The How-and-Why Series, edited by Gerald Bullett. London: A. and C. Black, Ltd. 1933. (Pp. 96. 2s. 6d. net.)

behaving in like manner, is a superior being governed only by reason, are really not seeking truth, but trying to keep their ends up, or trying to defend some of their favourite habits and pastimes. Once we admit that animals are but simpler editions of ourselves, it is difficult to combine an easy conscience with the enjoyment of such sports as hunting, or such self-indulgences as eating the flesh of our poor relations."

This passage is representative of the quality of the author's thought and writing. The book could have no stronger recommendation.

CYTOLOGICAL TECHNIQUE

In the handy little book entitled *Cytological Technique*,[5] by J. R. BAKER, the student will find a useful guide to the methods of preserving cells or parts of cells in a "life-like" way. The author reminds the reader that both the cytoplasm and the nucleus of a living cell consist of homogeneous watery fluids, which suffer varying degrees of shrinkage and precipitation into sponge-like, reticulate forms when subjected to the usual processes of fixation and staining, and he looks forward to the time when someone will have thought of a convenient way of examining the living cell. The account of the commoner fixatives and staining reagents employed in histology and their relative advantages and drawbacks is sufficiently detailed, and to students who are familiar with the subject the attempt to explain the reactions by chemical diagrams may perhaps be helpful. We find the too frequent use of the impersonal "one" rather irritating. In recipe books the "imperative" is customary and preferable.

Notes on Books

One of the most difficult questions to settle in workmen's compensation is the extent to which a given disablement is the result of an injury which occurred a long time back, and very little provision has been made to guide legal and medical practitioners concerned with this work. Dr. G. F. WALKER, assisted by a member of the Bar, a general surgeon, an ophthalmologist, and an ear, nose, and throat specialist, has compiled his book, *The Injured Workman*,[6] with the idea of presenting a survey of the pathological processes arising out of a large number of single blows, stresses, and injuries. A special effort is made to trace probabilities and possibilities of causation. As Professor Maxwell Telling points out in a foreword, the general practitioner is not trained to present, in an accurate and detached manner, the facts of a workman's case before employers, insurance companies, and courts, and this book is designed to help him to keep his balance amid the conflicting pressures excited by the workman and by these three kinds of corporation. It begins with an excellent presentation of the main features of the Act, and deals, incidentally, with less obvious results, such as "rusting." It attempts successfully to hold the balance between the normal honest workman and the malingerer. It will give the lawyer, especially, a clearer grasp of the medical intricacies of late results than any work that we can recollect, but he must understand medical technology.

A story of pioneer medical work in the Peace River area of Northern Alberta, Canada, is unfolded attractively in a series of letters by Dr. MARY PERCY JACKSON, which have been collected in book form with the title *On the Last Frontier*.[7] The period covered is June, 1929, to September, 1930, and the fact that such adventures are still to be encountered will come as a surprise to some and as a relief from the more humdrum emergencies of areas where civilization has left less scope for personal initiative and endurance. The difficulties of getting gravely ill patients to distant hospitals, the personal vagaries of settlers and half-breeds, the many complexities introduced into life by severe climatic conditions, and a variety of triumphs and discomfitures are narrated in a delightfully human and humorous style. More than one occasion is utilized for shrewd comment on such problems as migration and colonization. This personal record will appeal to readers interested in medical work in the more sparsely populated regions of the Empire.

Dr. W. B. HOWELL of McGill University, Montreal, has written a pleasant history of *Medicine in Canada*,[8] which, though far less detailed than Dr. J. J. Heagerty's history, contains the essential facts set out with many a touch of humour. Hospitals were established by the French in Quebec and Montreal in the first half of the seventeenth century, more than a century before the first hospitals were opened in the United States. There was much need in New France for hospital accommodation; the earliest settlers suffered greatly from scurvy, and after this few years went by without an epidemic of small-pox or typhus, which usually began in Quebec, the port of arrival of ships from Europe. In 1773 there was an epidemic of syphilis, mainly spread extragenitally, which caused appalling suffering in the Province of Quebec, and was not stamped out until after 1786. The earliest attempt to organize a medical school made at Quebec in 1823 was not successful, but a second attempt in 1830 led to the formation of the medical faculty of Laval University of Quebec. There are a number of short anecdotal sketches of medical notabilities, especially of John Rolph, who practised both law and physic, had a remarkable gift for teaching, but was unscrupulous and an inveterate cause of strife.

We have received Schnirer's useful *Medizinal-Index* and *Therapeutisches Vademecum* for 1933. Published at Leipzig and Vienna by Franz Deuticke, the two volumes, which amount to some seven hundred pages in all, represent a mine of information on the topics indicated.

[5] *Cytological Technique*. By J. R. Baker, M.A., D.Phil. Methuen's Monographs on Biological Subjects. London: Methuen and Co., Ltd., 1933. (Pp. x + 131; 3 figures. 3s. 6d. net.)

[6] *The Injured Workman*. By G. F. Walker, M.D., M.R.C.P., and collaborators. Bristol: John Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd. 1933. (Pp. 190. 6s. net.)

[7] *On the Last Frontier*. Letters of Mary Percy Jackson. Pioneering in the Peace River Block. London: The Sheldon Press. 1933. (Pp. 118; 18 illustrations. 2s. 6d.)

[8] *Medicine in Canada*. By William Boyman Howell, M.D. Clio Medica. New York: Paul B. Hoeber Inc. 1933. (Pp. xiii + 137. 6 figures. 1.50 dollars.)

Preparations and Appliances

DIGOXIN

Digoxin is a preparation of an interesting new digitalis glucoside isolated by Messrs. Burroughs Wellcome and Co. The glucoside is obtained from *Digitalis lanata*. Clinical trials arranged by the Therapeutic Trials Committee of the Medical Research Council have shown that the glucoside has a powerful and rapid action upon auricular fibrillation. The problem of obtaining a satisfactory preparation of any digitalis glucoside in a pure crystalline state has occupied the attention of pharmaceutical chemists for many years.

The advantages of digoxin are that it is a pure crystalline substance of known chemical composition that is rapidly absorbed from the alimentary canal. Moreover, it is water-soluble, and hence can be given intravenously. The drug is supplied in solution, and also in tabloids containing 0.25 mg.

DETTOL

Dettol is described as a halogen derivative of xylenol dissolved in a mixture of aromatic essential oils, having a Rideal-Walker coefficient of the value of 3. The chief advantages claimed for this preparation are that it is non-irritant, non-toxic, non-staining, not corrosive to metals, and pleasant smelling. Bacteriological tests have also shown that the germicidal activity of dettol is not greatly reduced by admixture with blood or pus, which is a point of great practical importance. Its non-toxicity has been established by animal experiments. It is particularly recommended for such uses on living tissues as the disinfection of the doctor's hands and the patient's skin, obstetric prophylaxis, and the treatment of wounds.

The number of disinfectants is very large, but none are wholly satisfactory. This preparation has been proved by laboratory investigations to possess an unusual combination of those qualities which are desirable in germicides, and therefore deserves careful clinical trial. The manufacturers are Messrs. Reckitt and Sons, Ltd., Hull.

PREGNANCY DIAGNOSIS STATION

REPORT OF FOURTH YEAR'S WORKING

BY

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Previous reports[1] dealt with the cases diagnosed by the station up to the end of January, 1932. The present report refers to the work carried out between the end of January, 1932, and January 31st, 1933. As previously, only cases submitted by practitioners, hospitals, or public health authorities are considered. There will be a separate report on the results of tests undertaken on selected samples in connexion with certain clinical studies. In all 2,368 cases have been dealt with in the period of the report; this figure does not include repeat tests. The total number of cases diagnosed since 1929 thus exceeds 5,500.

TECHNIQUE

The modifications of the original technique which were introduced previously (routine detoxication with sulphosalicylic acid, etc.) were retained; detoxication was generally successful. Gradation of dosage was abolished, and equal doses of urine (0.4 c.cm. per injection) are now given to all mice.

RESULTS

Reports from senders numbered 1,452. Of these, 1,432 contained a confirmation of the diagnosis, which had been "positive" in 772 cases and "negative" in 660. There were twenty reports in which the ultimate clinical diagnosis differed from the diagnosis submitted by the station; this would appear to give an error of 1.37 per cent. Analysis of the data, however, shows that in several cases the error was only "apparent" in the sense in which this term was used in previous reports. For instance, a "negative" and seemingly misleading reaction is obtained when the ovum has died, even though expulsion has not occurred. If cases of this and similar nature be eliminated, a "real" error of 0.89 per cent. is found. Of the "real" errors all but one were "negative errors"—that is, the station gave a "negative" diagnosis in the presence of pregnancy. In five cases of "negative error" pregnancy had been in its very early stages; repetition of the test (in two cases) three to four weeks later gave "positive" results. On the other hand, "positive" tests were obtained (and confirmed by clinical observation) as early as four days after the first missed period. In the case of samples collected very soon after the last menstrual period, it thus seems advisable (1) to regard a "positive" diagnosis as almost certainly correct, and (2) to have the test repeated after an interval of two to four weeks if the reaction is "negative" and the clinical diagnosis continues to be doubtful.

When this year's results are compared with those of previous years a not inconsiderable increase in accuracy is found. This year's data show that the test was correct in 99.11 per cent. of all those cases where clinical control was obtained; the highest previous figure was 97.8 per cent. It is possible that the improvement was due to the higher dosage used in last year's tests; on the other hand, the decrease in the incidence of errors may be spurious. By drawing conclusions from the data controlled by clinical findings it is implied that the distribution of errors in the whole group of tests is the same as in the controlled group. As has been mentioned in a previous report, this assumption may be mistaken. It is hoped that in future all those who avail themselves of the services of the station will fulfil the request to inform us of the ultimate clinical finding, and thus help to eliminate a possible source of erroneous conclusions.

"NEGATIVE" TEST AND ABORTION

This year's "errors" again contain several cases in which a "negative" diagnosis with definite clinical signs of pregnancy was followed by abortion. The data are now sufficiently numerous to justify more detailed investigation; this is now in progress, and the results will be published shortly.

FRIEDMANN TEST

The station has carried out a number of Friedmann tests (rabbit tests—see last year's report) during the last six months. The results seem very satisfactory, but the number of tests controlled by clinical reports is still small. A report on the results will appear when the numbers justify an analysis.

FEES

The fee charged by the station for the Zondek-Aschheim reaction carried out on behalf of private practitioners will remain unchanged at 10s. The fee for hospitals or public institutions will be raised by 1s. to 4s. It is necessary to make this increase because the number of hospital cases rose during the last year to a surprising extent, and the fee of 3s. involved a considerable loss. As in previous years, the station was secured against deficit by a guarantee from the Medical Research Council.

DISPATCH OF SPECIMENS

Careful packing of the specimen is essential, and the name and address of the doctor should be put on the parcel. It has occurred on several occasions that parcels were destroyed by the Post Office (in accordance with its regulations) when the bottle containing the sample was broken, so that fluid escaped. In several such cases the station was unable to trace the sender. It is therefore particularly requested that details regarding the case, and the name of the sender, should be forwarded to the station under separate cover, and that the fee accompany this information in order to save unnecessary expenditure and work. It may also be mentioned that the station does not send out or return containers for samples; any clean bottle will serve the purpose.

Finally, clients are urged to comply with the following requests: (1) to give full particulars of every case; (2) to inform the station of the ultimate result. The scientific value of the data collected by the station would be greatly enhanced if detailed information were given in a greater number of cases.

[1] *British Medical Journal*, 1930, i, 662; 1931, i, 860; 1932, ii, 759.

THE "POOR-WHITE" PROBLEM IN SOUTH AFRICA

[FROM OUR CORRESPONDENT IN PRETORIA]

The report of the Carnegie Commission of Investigation on the "poor white" question has now been published. This Commission was the outcome of a visit paid to South Africa in 1927 by the president and secretary of the Carnegie Corporation of New York. The problem was represented to them to be in urgent need of investigation, and a request was addressed to the Corporation by the Dutch Reformed Church asking for support towards this investigation. The report is published in five volumes, dealing in turn with the economic, psychological, educational, health, and sociological aspects of the problem. Each of these aspects was the subject of special investigation by a technical expert, but the members of the Commission kept in close touch with each other throughout the inquiry, so that they were able to make very important joint recommendations.

As the term "poor white" implies, the European inhabitants of the country traditionally have a higher standard of living than the non-European. The majority of poor whites are still imbued with the conviction that they are superior to the Bantus, and this feeling has played an important part in preventing intermarriage between the races. There was an insufficient supply of European labour at the time when modern economic development began in South Africa. Consequently the economic system has been organized on a basis of cheap

native labour, and this has hindered the poor white from being absorbed in the new industrial system.

The unrestricted competition on the labour market between the unskilled Bantu and the poor white, and the low wages the European then receives, create conditions of poverty which have a demoralizing effect on the Europeans. The so-called colour bar is designed to restrict certain forms of semi-skilled labour to Europeans, to the exclusion of the Bantu. As the Commission points out, this "bar" will defeat its own end unless it is of a temporary nature and designed to give the protected Europeans the opportunity of increasing their skill. It is not sufficient for the State merely to provide the European with employment; measures must be taken to ensure that those who are assisted in this way are spurred on to greater personal efforts and to improved efficiency. A policy which, in certain spheres, protects an unskilled poor white by reservation of work against non-European competition makes such competition all the more severe in other parts of the labour market where the "colour bar" is not applied.

The poor white population of the Union is estimated at at least 300,000 out of a total European population of under 2,030,000. Their economic decline has been caused principally by inadequate adjustment to modern economic conditions. This has occurred especially among the older Dutch-speaking portion of the population, which has been severed from European progress and development for many generations, and has lived chiefly under the simple conditions of the pioneer. The discovery of diamonds and gold, the capitalistic exploitation of mines, the influx of immigrants with the modern business outlook, and the rapid penetration of railways into the interior quickly forced the development of the country into new channels from about 1880. The older settled white population was faced with entirely changed conditions, under the direction, mainly, of English-speaking persons.

The medical inquiry conducted by Dr. W. A. Murray, with the co-operation during the initial stages of Dr. E. H. Cluver (both of the Union Health Department), aimed at ascertaining to what extent ill-health was a cause of "poor whiteism." The data collected showed a high mortality among the children of poor whites. This mortality is attributed largely to insanitary habits and surroundings, which often lead to faecal pollution of water and food with resulting infection and death. The dwellings were usually found to be defective, and overcrowding is considered to account for much disease.

A nutrition study was carried out among school children in the Transvaal, including those who, besides being poor, were suffering from malaria. This investigation seemed to indicate that poverty and unsatisfactory diet generally had a more detrimental effect on nutrition than malaria or other diseases. The observations of the education expert support this. Poor white children suffering from malaria did not score noticeably less in scholastic and intelligence tests than similar children in other areas. In malarious districts the disease is, however, frequently accompanied by inadequate diet among the poor, and these two factors are palpably injurious to health. The investigations led to the conclusion that epidemic diseases, insufficient or unsuitable diet, and climate are not among the great primary causes of impoverishment of a section of the white population. The conditions of poverty and ignorance lead to lack of food and to wrong diet; these weaken the resistance of the poor white to disease and reduce his working power, thus making the problem more acute.

The diet among these people was found to be inadequate in many important respects. In a small percentage the quantity itself was found insufficient. More generally, the food was monotonous, being ill balanced and lacking in variety, especially in regard to vegetables; several important elements such as proteins, fats, and vitamins—particularly vitamin C—were insufficiently represented. Invariably the diet contained too high a proportion of starch, usually in the form of mealies but sometimes also in the form of potatoes. The chief causes of the inadequacies in the diet can be attributed to ignorance concerning the choice and proper preparation of food, and to poverty and unfavourable natural conditions. Droughts and other plagues in the semi-arid Karroo, for instance, often result in shortage of food; even under normal conditions the low rainfall in this region makes it difficult to grow vegetable food.

The examination of children of poor whites showed that the better-fed children were superior to the underfed children in height, weight, and chest measurement. Conditions of isolation and the lack of stimulating influences have contributed to keep the poor white family backward as regards housing and housekeeping, and have prevented and retarded the development of the social sense and of the consciousness of solidarity with neighbours. School children were selected as affording the most convenient and reliable material for the nutrition study. Variations in their health and physique formed a sensitive index of the health of the community, and in them could be clearly seen the evil results of poor heredity, of familial or communal ill-health, and of unfavourable environment. The methods employed in collecting the data consisted of a physical examination of each pupil in school, and a visit to his home to ascertain previous and present health, diet, health habits, and family circumstances. Wherever possible, the mother's statement was checked by personal observations in the home, and by inquiries from the school principal.

HEALTH OF THE ARMY IN THE U.S.A.

In his last report on the health of the Army Medical Department of the United States, Major-General R. U. Patterson draws attention to the relation of economic depression to military health figures. The number of enlistments, and more especially the number of first enlistments, has a very material influence on the Army morbidity and mortality rates, since communicable diseases occur much more frequently among men who have not been exposed previously to crowd infections. In consequence of the period of economic depression which prevailed in the country generally during 1931–2, there were comparatively few desertions, discharges by purchase, or loss of men for any other reason than expiration of term of service. There were therefore fewer vacancies to be filled by enlistments, the number being 49,274, as compared with 50,910 in 1930 and 61,898 in 1929. On the whole the health of the Army was very satisfactory during the year. The admission rate for sickness due to all causes was higher than in 1930, but this was largely owing to an epidemic of acute respiratory disease which occurred early in the year. The average admission rate to hospital from all causes for white enlisted men in the United States has fallen by about 76 per cent. during the past eighty years; the same rate for the respiratory group has declined by only 37 per cent. Fatalities from automobiles have increased so greatly during the past two years that deaths from this cause now head the list. In a large number of these cases faulty driving was clearly the cause of the fatality. General Patterson considers this increase in automobile deaths alarming, and urges that appropriate measures should be taken to bring about a reduction in the number of such accidents. He believes also that there is a large amount of unnecessary roughness in athletic games, injuries incurred while playing baseball coming first and football second. In the twelve months reviewed the admission rate for venereal disorders was the lowest yet recorded (45.6 per 1,000). He attributes the reduction during the last quarter of a century to the initiation of such control measures as education in sex hygiene, periodical physical inspections, adequate treatment of cases, restriction during the infectious periods, forfeiture of pay for absence from duty because of venereal disease, prohibiting military personnel from visiting the so-called "red-light" districts, better supervision in the administration of prophylaxis, and, finally, holding the unit commander responsible for the control of such diseases in his organization.

British Medical Journal

SATURDAY, AUGUST 12th, 1933

RADIOLOGY OF THE DIGESTIVE TRACT

Before the introduction of the *x* ray into medicine the anatomy of the abdominal contents was dependent on information gleaned in the post-mortem room about their position and relations, supplemented by peeps at the viscera obtained during operation, usually while the patient was profoundly under the effect of anaesthesia. In regard to the function of the digestive organs even greater difficulties presented themselves. By means of tubes in mouth, stomach, and duodenum the chemical features of digestion were gradually elucidated, but the movements of the alimentary canal could only be determined indirectly by the introduction of balloons and other devices to indicate the pressures, or by inference from experiment on animals under anaesthesia. Dr. A. E. Barclay, in his book on *The Digestive Tract*, reviewed in another column, points out the great advances that have been made by observing radio-opaque substances during their passage through the alimentary canal. In the modern technique the radiologist watches the progress of what is really a meal, though for his own purpose it is made opaque. He thus approaches most nearly to a physiological condition, but it must be understood that much of the information is still incomplete and depends on inferences from the movements of the shadow contents as to their cause.

The principal difference from the old teaching of the anatomy founded upon observations in the dissecting room is the concept of mobility in the form and position of the stomach and intestines. Under what must be regarded as entirely normal conditions the lack of fixity is indeed remarkable. Not only do mental influences such as fear, nausea, and other strong emotions profoundly affect the behaviour of the viscera, but mechanical influences are of importance, and these lend themselves more readily to study. The chief mechanical factors responsible for change in shape are the posture of the subject (the influence of gravity) and the movements of the abdominal wall muscles, especially the diaphragm, but other factors must be considered, such as the balance between the distension of the organ by the bulk of the food and the tonic action of the intrinsic muscles of the organ, and pressure from other viscera. In the anatomical textbooks the levels of the diaphragm cited are based on observation of dead subjects, and *x*-ray study of corpses confirms the accuracy of this description, but it is far from being correct in the living. The tonic contraction of the diaphragm brings the "at rest" position of the domes two or three vertebrae below that of the dead subject. Of course there is considerable variation between the position in full inspiration and that in full expiration, but Dr. Barclay has determined that in normal healthy students the position of the diaphragm at all stages of respiration is practically the same in the supine as in the erect position. The capacity of the chest in the ordinary healthy man is therefore practically the same in the vertical and supine, and even in the inverted position too. Dr. Barclay has been a pioneer in attempting to reproduce radiographic tracings superimposed on photographs of the subject so that they shall be more or less accurate representations of the organs that cause the shadows. This research is fraught with much difficulty. It has, however, made prominent the variation in position of what used to be regarded as fixed points, such as the pylorus (which is found free to move within a radius of some inches), the caecum, and the flexures of the colon. Fairly extensive movement of the liver has been observed in quite healthy subjects. This knowledge has led to a complete change of views on the subject of visceroptosis, since observations on healthy people show that the stomach, caecum, and colon are able to function normally irrespective of their positions. Operations for shortening the stomach and fixing the colon were based on false premisses, and a large range of mobility and variation of relationship is normal.

It is in elucidating the physiology of the movements of the alimentary canal, however, that radiology has been of such service, though much remains still to be discovered. In quite the early days of *x* rays Cannon made some valuable observations on the movements of the digestive organs of cats after giving bismuth with their food ; but this method has been little followed up by purely scientific workers, and a great deal of the information acquired has been accumulated by radiologists during the routine examination of patients ingesting opaque meals. In this way, however, the normal and abnormal have become mixed up, and Dr. Barclay has done good service in gathering together the information scattered through the literature and rewriting the subject in the light of his own wide experience of the opaque meal in the clinic and of his results obtained while teaching students. He has included, naturally, some of his original work on the act of swallowing. According to his own observations several definite events are noticed: first, the whole larynx rises, then suddenly the pharyngeal space appears again, and into it comes the swallowed opaque mass. The bolus as it travels gives the impression of being sucked rather than pushed down, as if a negative pressure had been produced in the pharynx, and indeed all the conditions for producing negative pressure are present. The sequence of events had been worked out by Dr. Barclay from the *x*-ray appearance, but experimental proof of the negative pressure in the pharynx during swallowing has been obtained. The bolus passes down the gullet at a uniform rate, apparently uninfluenced by gravity, and enters the stomach through the cardiac orifice, which may function in three ways—as a patulous canal, as a sphincter which gives way before a peristaltic wave, or by invaginating its contents into the stomach. Food then passes down the lesser curvature under the influence of gravity and down a series of channels formed by the vertical folds of mucous

membrane to the pyloric antrum. As filling takes place the stomach maintains its tubular form, and this tube widens out as more food is taken, the heavier foods tending to sink to the lowest part. Normally there is no general churning of the food, but the foodstuffs are gently stroked by the secretion-bearing mucous membrane as each successive wave of peristalsis passes along.

In the emptying of the stomach the opening of the pylorus does not seem to be controlled ordinarily by the intragastric pressure: gravity and tonic action appear to play a part, but peristalsis is apparently not the chief motive power; and Dr. Barclay is certain that the opening of the pylorus does not depend on the acidity or alkalinity of the food. This part of the physiology of the stomach still remains obscure. In the small intestine, too, the passage of the food is so rapid that for fuller information we must await the advent of serial radiograms with cinematographic apparatus. In the large intestine, however, the process is slower, and from the terminal ileum the food is seen to be packed up into caecum and ascending colon, not much influenced by peristaltic waves, but perhaps forwarded by the pumping action of respiratory movement. In this way a continuous column extends from the apex of the caecum to the distal part of the transverse colon. At intervals, three or four times a day, a strong peristaltic wave projects a considerable mass of contents rapidly through the remainder of the transverse and descending colon. This mass movement is over in a very short time; the mechanism appears to be, first a relaxation of the tonic action of the muscular coats so that the haustral segmentations disappear, followed by a big peristaltic wave that sweeps the whole contents along. There may be at the outset a definite constriction formed, a *point d'appui*; the bowel distal to this first relaxes, and then contraction follows, driving the contents along in the manner of the law of the intestine enunciated by Bayliss and Starling. It is believed that these results will throw light on the disorders leading to constipation, since this mass movement may be absent or delayed, or it may be incomplete owing to lack of a *point d'appui* in an atonic colon, and thus the disability may be situated higher up in the intestine than occurs in the other form of constipation in which there is stagnation in the rectum. Dr. Barclay's book not only gives a full description of recent knowledge, but points the way to further advances.

THE AIMS OF MEDICINE

In his address to the Section of Public Health at the Annual Meeting of the British Medical Association in Dublin, printed in the present number of the *Journal* (p. 275), Dr. J. L. Brownlie, Chief Medical Officer in the Department of Health for Scotland, states clearly a number of points which are of fundamental importance in relation to national health policy, and about which doubts have been expressed and questions raised in a more tentative fashion by others during the past few years. He asks, in effect, what is the true aim of national health policy, and what should be the training and equipment of the medical practitioner in order that he may make his full contribution to its accomplishment? During the past hundred years, and more particularly during the present century, much has been accomplished of which we are properly proud. Man lives longer, children die less frequently, some major pestilences have disappeared and others are manifestly being brought under control, hazards have been lessened or removed, comforts have been provided. But, with all this, have we achieved a definitely higher standard of general race-fitness, and are all these extended years of existence, in young or old, really worth while? If the business of what is called preventive medicine is to make human life longer it has already attained success, and is perhaps within sight of the utmost it can accomplish; but if, in the words of Sir George Newman, it is "to make human life better, longer, more capable and useful, happier," then surely Dr. Brownlie is justified in asking us to pause, survey, and consider what should be done to reach more effectively and speedily this other and more worthy goal.

Dr. Brownlie might have made his main thesis even more striking if he had specifically referred to mental health as well as to physical. It is, of course, true that mental and physical unfitness often go together, but the increased notice that has recently been taken of mentally defective and mentally ill-adjusted children, the facts that tens of thousands of persons are annually admitted to mental hospitals, that each year there are thousands in this country who commit suicide or attempt to do so, that the psychoneuroses increase more rapidly than our facilities of treating them, that delinquency, disharmony in marriage, and drug-addiction are still so frequent, all show that the prevention of mental maladies is no less urgently required than that of physical illness. In singular appropriateness to Dr. Brownlie's address Dr. Neil R. Beattie has recently asked: "What purpose is served by preserving physical health, through teaching hygienic habits, if it means only healthy bodies having more or less sick or unhappily functioning minds obsessed by fears, prejudices, jealousies, inhibitions? What purpose is there in lengthening the span of life if it means only a little longer dragging out of a weary existence of thwarting, conflicts, dissatisfaction, frustration?"

Neither of these inquirers asks his questions to belittle what has been accomplished, or to cast any doubt upon the wisdom of the suggestions that have been made by the British Medical Association and others for improving, co-ordinating, or unifying existing public medical or social services. Accepting these as desirable, and even urgently needed, it yet remains to direct the common health purpose in the most essential direction, to stimulate action towards reducing the mass of invalidism, both physical and mental, which still persists despite our knowledge of means to prevent much of it, to avoid, as far as may be, the lag of medical practice behind the advance of scientific knowledge. The importance of medical education, both undergraduate and post-graduate in this regard, cannot be

exaggerated. Dr. Brownlie declares that "deficiencies reach back through organization to the medical curriculum, and beyond the medical curriculum to the fundamental aim of national health policy." He makes one striking application of this thought. The statistics of disability which are collected from Scottish insurance practitioners show conclusively that the causes of such disability differ widely from those which are recorded in tables of mortality. Yet we instruct the medical student, in the main, on cases which show the advanced consequences or end-results of morbid processes, instead of securing for him the experience, knowledge, and help which he needs for the diagnosis and treatment of such conditions as he will meet with in his daily practice.

The whole of wisdom with regard to medical training is not summed up in this criticism ; but if, as is claimed, our organization for the public health should be based upon the family practitioner, the emphasis with which it is advanced is fully justified. Of like importance, though in a different field, is the indication which Dr. Brownlie gives that some of our social services and medical clinics (particularly those concerned with infant welfare) tend to drift from their preventive purpose to "the pleasant exercise of a not too discriminate philanthropy." Medicine and philanthropy are no strangers, but their respective aims and methods ought clearly to be distinguished instead of confused. Dr. Brownlie is to be thanked for calling attention to basic questions of this character.

LIPAEMIA AFTER FATTY MEALS

The problems of the absorption and metabolism of fats are complex, and yet have practical application in conditions such as obesity, diabetes, and lipaemia. Information about the variation of fatty substances in the blood in health and in disease has had to wait for suitable methods of estimation of these substances. MacLean, in his monograph on lecithin and allied substances, classifies the fatty constituents of the blood into (*a*) neutral fat and fatty acids ; (*b*) cholesterol ; (*c*) substances containing fatty acids, nitrogen, and phosphorus ("phosphatides"), such as lecithin ; and (*d*) substances containing fatty acids, nitrogen, and a carbohydrate group, but no phosphorus ("cerebrosides"). These are all characterized by their solubility in organic solvents—alcohol, ether, benzol, etc. ; and on evaporation of the solvent a greasy residue remains. A primary ether extract of dried blood contains the fatty acids and the greater part of the free cholesterol, but practically none of the phosphatides ; these are obtained by subsequent extraction with alcohol. The analysis of these ether and alcohol fractions is a difficult matter—indeed, unreliable with the small quantities of blood that can be obtained in any bedside research on patients. Of the simple micro-methods, that of Bing-Heckscher is perhaps the most easily applied in clinical work. In it the amount of neutral fat and free cholesterol of 0.1 c.cm. of dried blood is determined in one estimation as the primary ether extract by means of a nephelometer. Nissen, in a recent monograph on alimentary lipaemia in man,[1] has used this method, understanding by the word lipaemia the neutral fat plus free cholesterol in the primary ether extract of the blood. Since the free cholesterol of the blood is uninfluenced by the fats of the food, this simple ether extract gives the measure of the variation of neutral fat in the blood. In a series of fifty-two healthy persons, students, nurses, and patients convalescent from indifferent diseases, the fasting values of the primary ether extract were found to be between 50 and 90 mg., averaging 64.6 mg. per 100 c.cm. of blood. The individual fasting values from day to day were remarkably constant. After a meal containing about 1 gram of fat per kilo of body weight, consisting of cream, rusk, and tea without sugar, an increase of the fasting value amounting to 15 to 100 per cent. occurred. The highest level of the curve was usually reached four to five hours after the fat intake. In repeated tests the ingestion of the same amount of fat on several days in succession gave a generally constant height of the curve. On ingestion of increasing amounts of fat in the same person the height of the curve was found to depend but little on the amount of fat, but the intake of large amounts of fat influences the length of the rise of curve above normal. Repeated ingestion of fat at a few hours' interval prolongs the curve but does not produce a rise of the curve above the highest level of the initial rise. In children the type of curve obtained approximates generally with that observed in adults. The course of alimentary lipaemia is influenced when carbohydrate is ingested together with the fat ; there is a delay in the rise of the curve and a shifting of the apex to the right. Observations on patients with diseases which might be thought to influence fat metabolism were made by the same methods. In a quarter of the cases of obesity examined the alimentary lipaemia rose to a greater extent and continued above normal for a longer time, while the fasting blood lipaemia was higher. The curve thus resembles that obtained with the blood sugar values in certain cases of obesity ; but, in general, little disturbance of the curve of alimentary lipaemia is found in obesity. Five of the six cases of arteriosclerosis examined gave distinctly abnormal curves with great increase over the fasting values and prolonged duration of the alimentary lipaemia ; while cases of nephrosis and nephritis in pregnancy showed distinct disturbances from the normal course of the curve. Dr. Nissen's thesis for the doctorate gives an interesting survey of what is almost new ground, and research on these and allied problems of fat metabolism may be expected to throw light on many obscure bits of pathology.

[1] *Studies on Alimentary Lipaemia in Man.* By N. I. Nissen. Copenhagen: Levin and Munksgaard. 1933. (Kr. 2.)

MUSCULAR ENDURANCE

The craze for "record breaking" periodically calls forth accounts of feats of endurance that provide evidence of the capacity of human muscles for continuous work. This subject has recently been investigated by a group of American workers, who have obtained results with animals more surprising than any obtained with man. Dill, Edwards, and Talbot[1] studied the performance of a dog trained to run up an inclined plane and found that the chief factors limiting its performance were external temperature, supply of oxygen, supply of fuel, and supply of water. They eliminated these factors by adjusting the rate of work.

[1] Dill, D. B., Edwards, H. T., and Talbot, J. H.: *Journ. of Physiol.*, 1933, lxxvii, 49.

by providing suitable external conditions, and by allowing periodical rests for intake of food and water ; they then found that the performance of the dog was virtually tireless. In one case a dog ran for seventeen hours with a five-minute period for rest and feeding every half-hour. In the seventeen hours it ran 132 km. (82 miles) and climbed 23 km. (14 miles), with a total energy output of 150,000 kg.m. per kilo of body weight. The animal had kept up an average pace of five miles an hour on a gradient of 1 in 6, and the height climbed was more than twice the height of Mount Everest. This performance is all the more remarkable because the dog is not usually credited with great powers of endurance. The reason for this is that a dog, when allowed to go its own way, chooses one that quickly produces exhaustion. There has, indeed, been a general belief that man has quite exceptional powers of endurance, but these experiments suggest that animals have greater endurance than is usually credited to them, and that man's superiority depends chiefly on his superior judgement. Leese, Hines, and Jordan[1] studied muscular endurance by another method, for they anaesthetized rats with amytal for several days and stimulated the gastrocnemius at regular intervals. They found that the muscle responded up to 100,000 times before exhaustion occurred. In this case the rats were not fed, and probably the limiting factor was exhaustion of sugar. Tests of muscular performance usually measure the maximum work that can be performed in a given time, and hence are tests of the efficiency of the circulation at least as much as of the efficiency of muscles. The experiments mentioned above demonstrate the remarkable efficiency of skeletal muscles when these perform slow but continuous work.

SURGICAL FILMS

In a survey and forecast of the value of cinematograph films in surgery which appears in the summer number of *Sight and Sound*,[2] Sir D'Arcy Power notes that there is no medical school in England which has a film library from which the student can reproduce mechanically what he has seen at the operating table. Recalling the "speed-merchant" surgeons of pre-anaesthetic days, such as Cheselden and Sir William Ferguson, he remarks that a film would have shown every movement of their 30-second lithotomies, and would reveal to us now, in these more leisured times, the secrets of a lost art. Nowadays, he continues, films in surgery could be used for three main purposes. By their means the house-surgeon could teach his dresser how to carry out such minor operations as removal of a crushed finger, the treatment of a poisoned hand, or the performance of circumcision ; secondly, the doctor in practice who is obliged to relieve a strangulated hernia, remove an appendix, or apply forceps in a midwifery case would be greatly helped if he could look through a set of films to remind him of how these things were done in hospital. A third use for them would be for the post-graduate student who still has much to learn in the way of operative technique. The removal of a cancerous breast, of a deeply placed tumour in the brain, the performance of a complicated operation on the sympathetic system, or a thyroidectomy, might well give him pause. The more he studied the film the more inclined he would be to leave such operations in the hands of those more skilled than himself. Sir D'Arcy Power would be glad to see films replacing drawings and verbal explanations in the teaching of surgery ; but two difficulties stand in the way—the cost, and the wear and tear of the films and of the apparatus which shows them. A single microscope once served for an entire class ; now every student has his own. Perhaps in the future cinematographs may also become individual possessions.

[1] Leese, Hines, and Jordan: *Amer. Journ. of Physiol.*, 1932, c, 241.
[2] Fulwood House, High Holborn, W.C.1. Price 1s.

DOCTORS' HOBBIES

Some interesting steeds were trotted out in the Hobbies Exhibition which, housed in the Medical School of Trinity College, formed a novel feature of the Dublin Meeting. The exhibition owed its origin, collection, and arrangement chiefly to Dr. F. S. Bourke, who persuaded his medical colleagues in all the four Provinces of Ireland to overcome their natural shyness and reveal what it was that occupied them when the day's work was finished. The largest class of the fifty exhibitors were those who found their hobby in collecting Irish antiquities, so that one saw stone axes, bronze swords, flint arrowheads, copper hatchets, and other evidences of a prehistoric Ireland in abundance, along with the antlers, skull, teeth, and bones of the Irish elk, which lived shortly after the last glacial period in Europe. Other contributors had turned to the collection of oddments illustrative of primitive folk life in Ireland, such as a set of three tally irons and heater, found in a house in Co. Wicklow, cockspurs, a roasting spit, on which meat was cooked over the turf hearth, and rushlights, which glimmered in Ireland from at any rate the third century down to within living memory. Others, again, had garnered up old Irish tokens and obsolete coins, including St. Patrick's pence, dating from just before the Cromwellian period, the gun money of James II, traders' scrips of various sorts, and old Irish regal copper of the early nineteenth century. Philatelic and medal-collecting propensities were evidenced by a few doctors ; others, with pardonable pride, showed their sporting trophies, evidence especially of their skill with rod and line, but including also the cups won by a famous Olympic athlete, Mr. Sean Lavan, at a long series of games and tournaments, national and international. Some of the displays took the visitor along strange bypaths, and brought to his mind the many odd ways in which collecting zeal finds an outlet: witness the collection of pot lids, all of the middle nineteenth century, designed primarily as containers for pomade, potted meats, and fish paste. Others showed how, on a miniature scale, swords may be beaten into ploughshares. For example, Professor Bayley Butler had a number of souvenirs of war in which French shells had become cream jugs and sugar basins, a French bullet had become a crucifix, and a paper-knife was the joint product of a French bullet and a German cartridge. It was the same ingenious fingers which discovered an unusual use for a laryngoscope—namely, to determine the depth of penetration of wood-boring beetles into structural timbers. Another exhibitor showed a soldering lamp which formerly was an aircraft shell-case, and a fire-blower which had been made out of an empty floor-polish tin and other odds and ends ; also an "aural masseur," to which an old gramophone motor, one of the valves of a broken

euphonium, and some bits of scrap brass had contributed. It must not be thought, however, that the exhibition contained merely what was curious and ingenious; there was much that was beautiful and precious, including some choice collections of artistic work with brush and pencil and etching needle. Dr. F. S. Bourke himself showed some exquisite pen drawings, one or two representing Dr. Steevens's Hospital, and Dr. Boyd Barrett had some admirable works in oils, after paintings by Sir Thomas Lawrence and Giuseppe Ribera. Mention must also be made of the fine collection lent by Dr. T. P. C. Kirkpatrick, who placed among the "Hobbies" some beautiful examples of books printed in Venice in the fifteenth century; also a mezzotint portrait of Robert Adair, the eighteenth century Dublin surgeon, the original of the song "Robin Adair." There were so many things of interest in the exhibition that it is difficult to refrain from reproducing the catalogue—from the model of the brown trout caught in the Blackwater to the cartoon by Leonardo da Vinci. Certainly the diversity of doctors' recreations has never been so well illustrated, and we may expect, given some other Dr. Bourke in England, that this happy Irish precedent will be followed at future Annual Meetings. A word of praise should be added for the excellence of the printing of the catalogue by Mr. Colin O'Loughlin.

A MEDICO-HISTORICAL EXHIBITION

An exhibition, consisting of instruments, manuscripts, books, and drawings, illustrating the history of medicine, chiefly in Ireland, was presented in a room in Trinity College, and proved a source of great interest during the Dublin Meeting of the British Medical Association. For its selection and arrangement thanks are principally due to Dr. T. P. C. Kirkpatrick, Registrar of the Royal College of Physicians of Ireland. The instruments shown included some old midwifery forceps: one unique specimen was discovered in 1813 concealed in a house which had formerly belonged to the family of Chamberlen, a family who practised midwifery in England for over a hundred years round about the sixteenth and seventeenth centuries, and a member of whom, Peter Chamberlen the elder, invented the midwifery forceps. A bygone generation of doctors was recalled by the silver-topped malacca cane used by a Dublin physician in the early part of the nineteenth century; the stick contained an enema tube, to which could be attached a brass syringe. Various early stethoscopes were shown, also pestles and mortars, some ancient thermometers, a speculum (supposedly sixteenth century), and an endoscope designed by Francis Richard Cruise "for examining the interior of the cavities of the body," and described by him in 1865. An interesting little object was a James II gold "touchpiece," presented to the King by his afflicted subjects on his touching them as a cure for scrofula. Among the MSS. was a valuable assortment of autographed letters, one of them, dated 1870, in the firm and decisive hand of Florence Nightingale. There was also a MS. report of the post-mortem examination on the body of Dr. James Currie, the Liverpool physician and editor and biographer of Burns. The physicians signing the report were George Daniell and John Skelton of Exeter (Currie died at Sidmouth in 1805). A letter from this same Dr. James Currie, dated 1792, was also exhibited; his correspondent was Thomas Percival of Manchester, the author of an early book on medical ethics, and the letter expressed Currie's approval of a professional code which Percival had suggested. Another letter was from Baron Haller, the illustrious literary character of the eighteenth century, presenting his compliments to Dr. William Hunter; and yet another was from Sir Edward Barry to Lord Orrery, written in 1737, and making reference to George Cheyne, the physician whose weight was said to be thirty-two stone. Barry at this time was proposing to settle in Bath, where Cheyne was in practice, and it is mischievously observed that "Cheyne is still big enough to fill all vacancies." Among many other interesting exhibits were some early certificates issued by Dublin hospitals. There were also various illustrated prints relating to the history of Irish medicine, and some excellent early coloured drawings of anatomical and pathological specimens. These were the production of one William Burke Kirwan, who placed his artistic gifts at the service of Dublin doctors, and had some reputation in this respect until he was condemned to death in 1852 for the murder of his wife, a sentence commuted to penal servitude. Another very realistic picture portrayed an operation in the pre-anaesthetic period, dated 1817. The operation was performed by Rawdon Macnamara, and the print showed a violently resisting patient in a drawing room, the curtains and carpet of which, as well as the clothes of the surgeons, were liberally bespattered with blood. Overlooking all was the death mask of Jonathan Swift, the dean of St. Patrick's.

THE KITCHENER SCHOOL OF MEDICINE

The fourth report of the Kitchener School of Medicine, Khartum, covers the years 1931 and 1932. In the first of these the number of students under training was 33 and in the second 35. Salient features of the training are the exceptional degree of individual instruction which is rendered possible by the small size of the classes, the practical outlook of the whole curriculum, which is especially directed to the combating of the prevalent endemic and epidemic diseases in the Sudan, and the promoting of a real understanding of medicine rather than the mere memorizing of facts and theories. The required four years of training as a student are followed by a compulsory fifth year of post-graduate work. The assessors during the two years were Mr. V. Warren Low, F.R.C.S., Mr. A. K. Henry, F.R.C.S., and Dr. A. G. Biggam. The present report includes a detailed account and appreciation of the curriculum by Mr. Warren Low, who concludes that the four years' training is the equivalent of the five years' course elsewhere. He commends the compulsory house appointment in the fifth year as being an intelligent application of the old principle of apprenticeship, with the obvious advantage that it follows the scientific part of the education. Throughout the course the teaching of the ancillary sciences and of the earlier subjects of the medical curriculum is directed to the main objects of instruction—namely, clinical medicine and surgery. He considers that the success which has attended the work of the Kitchener School of Medicine since its foundation in 1924 will enable the junior medical posts in the Sudan to be filled by Sudanese medical practitioners rather than by foreigners.

101st ANNUAL MEETING
of the
British Medical Association
HELD IN DUBLIN, JULY, 1933

THE SECTIONS
SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL *the opening papers communicated to the Scientific Sections of the Annual Meeting at Dublin. The reports of discussions in this and next week's issues are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Thursday, July 27th

RADIOLOGY IN HEART DISEASE

A discussion on radiology in the diagnosis of heart disease was held by a combined meeting of the Sections of Medicine and Radiology. Professor HENRY F. MOORE, President, took the chair for the first paper. He then asked Dr. GARRATT HARDMAN (Dublin), Vice-President of the Section of Radiology, to take the chair.

Dr. JOHN PARKINSON, opening the discussion, stated that *x*-ray examination gave evidence beyond the reach of percussion. Modifications due to thoracic build and overweight might be as great as those due to disease: examination in the oblique positions was as important as an anterior view. He discussed the importance of regional variations: the right ventricle might appear high on the left border and the left auricle often constituted part of the right border; to determine the presence of slight enlargement the *x*-ray findings must be related to the whole clinical picture. A simulation of enlargement was frequently due to scoliosis. He summarized the relative enlargements of the several components of the heart, and correlated *x*-ray findings with morbid anatomy by describing *x*-ray pictures confirmed by post-mortem findings. In toxic or exophthalmic goitre, he said, there was no very early assistance from *x* rays; coronary atheroma or myocardial disease might show distinctive shadows.

Dr. P. J. KERLEY opened the discussion from the radiological point of view. He did not claim that radiology had been helpful in the realm of pure pathology of heart disease owing to technical difficulties, but pointed out the value of screening and radiography in revealing the size of the heart and its various chambers, and the variations of its position due to bony deformities of the bony thorax and to emphysema. He explained the use of orthodiagraphy, teleradiography, and kymography. In teleradiography distortion was negligible. The value of kymography had yet to be substantiated. He mentioned a complicated system of *x*-ray measurements, valuable in physiological investigations. The small heart was more apparent than real. He referred to the difficulties of diagnosis in slight enlargements, and discussed differential *x*-ray diagnosis in atheroma, valvular diseases—particularly mitral stenosis—congenital heart disease, and the changes in the lungs due to passive hyperaemia of cardiac origin.

Dr. D. E. BEDFORD limited his remarks to the value of radiology in the diagnosis of congenital disease and disease of the pericardium, illustrating his subject with slides. Congenital disease showed anatomical deformities and no disease of muscle. He mentioned: (1) the scalloping of the under surface of the ribs, dilatation of the ascending aorta, and variation of the aortic knuckle in coarctation of the aorta; (2) the dilatation of the pulmonary artery in patent ductus arteriosus and pulmonary stenosis; (3) the enormous dilatation of the pulmonary artery and hypoplasic aorta in patent interauricular septum; and (4) the atresic pulmonary artery and large displaced aorta of Fallot's tetralogy. Dr. J. CRIGHTON BRAMWELL (Manchester) considered it was possible to predict the transverse diameter of the heart from weight and height in normal healthy subjects with an accuracy of about ± 10 per cent., but it must be remembered that athletes had unusually large hearts. Radiology was capable of revealing slight degrees of cardiac enlargement, even in obese and emphysematous subjects. Its greatest value was in revealing alterations in shape in the various chambers of the heart. Dr. L. ABRAHAMSON (Dublin) suggested that the exhaustive use of methods such as *x*-ray examination might ultimately free us from their use in some conditions. He demonstrated the value of radiology in doubtful cases of mitral stenosis, syphilis of the aorta in the absence of a diastolic murmur, and in obscure cases of cardiac failure due to retrosternal goitre. Owing to the unavoidable absence of Dr. HOPE FOWLER (Edinburgh), his paper was read for him. He mentioned the method of heart measurement of Fray, which was found successful in determining cardiac enlargement in 75 per cent. of his series, and the formula of Kahlstorf for measuring the volume of the heart. Dr. RALSTON PATTERSON (Manchester) mentioned some experiments by other workers proving that the heart size diminished—from an antero-posterior *x*-ray view—after exercise; also of his own, proving the same thing from a lateral view.

Dr. GARRATT HARDMAN (Dublin) thanked the speakers, pointing out that physicians who were also expert radiologists were rare, and that the radiologist must usually be ready to collaborate in assisting his medical colleagues to make a diagnosis. Dr. PARKINSON, in reply, agreed that the faith necessary for successful percussion was a thing of the past, and radiology was often essential to successful diagnosis.

OTHER PAPERS

Professor H. F. Moore then called upon Dr. M. A. CASSIDY to take the chair, and Dr. E. T. FREEMAN (Dublin) gave a paper on the treatment of fluid in the pleural cavity. He discussed effusions due to bacteria only. An argument against the removal of tuberculous fluid was that it acted as a splint to the lung; the removal, with gas replacement, was necessary to relieve intense dyspnoea and tachycardia: he mentioned the interstitial fibrosis frequently following absorption. Gas replacement prevented the dangers of simple aspiration of large quantities of fluid. In serous effusions expansion of the lung should be allowed to occur very slowly; in purulent effusions the lung should be induced to expand as soon as it was safe to permit it.

Dr. L. S. T. BURRELL being unavoidably absent, his paper, on the diagnosis and treatment of bronchiectasis, was read for him. In this he discussed the differential diagnosis between bronchiectasis and tuberculosis, neoplasm, abscess, and chronic bronchitis. In treatment, he stressed the danger of phrenic evulsion and the value of lobectomy.

Dr. PARSONS (Dublin) said that he very rarely aspirated tuberculous effusions. Dr. CASSIDY remarked that he had not often seen interstitial fibrosis following tuberculous effusions. Dr. FREEMAN replied that it was only when tachycardia and dyspnoea were extreme, and pyrexia was of more than four weeks' duration, that he advised aspiration.

SECTION OF PUBLIC HEALTH

Thursday, July 27th

NATIONAL HEALTH POLICY

Dr. W. M. FRAZER (M.O.H:, Liverpool), one of the Vice-Presidents, was in the chair, and opened the second session of this Section by recalling that the scheme of social services was now a quarter of a century old. It had survived the period of intense economic stress during the last three years—a testimony to the soundness of its foundations. A salient feature to-day, however, was the regrettable lack of co-ordination between such organizations as those

associated with the insurance scheme, municipal health undertakings, voluntary hospitals, etc. He then referred to the 1930 pamphlet. The British Medical Association scheme for a national medical service had certain fundamental requirements, some of which had proved to be impracticable. It had been thought at first by the Association that hospital services could be provided by an extension of the insurance scheme, but financial difficulties would seem to preclude this. It had more recently been suggested that part of the work undertaken by public health authorities could be carried out by general practitioners on a part-time basis. Dr. Frazer thought that this would give rise to very serious administrative difficulties. In the discussion which would follow, he said, it would be well to bear in mind the recommendations that had been made by the British Medical Association.

Dr. J. L. BROWNLIE (Chief Medical Officer, Department of Health, Scotland) then read his paper on "A National Health Policy, a Critical Survey." It is printed in full in this week's issue of the *Journal* (p. 275).

Dr. E. H. M. MILLIGAN (M.O.H., Glossop) advanced the opinion that any policy for the improvement of the national health would be incomplete unless preventive and curative medicine were linked more closely together. Both were, in the wider sense, preventive—the one preventive of the onset of disease and the other of death through established disease. The disconnexion in practice, therefore, between the public health service and the work of those engaged in private practice rendered the achievements of both much less effective than they ought to be. To remedy this state of affairs he suggested that national insurance work should be administered by local health authorities instead of by insurance committees, so bringing the curative service into close touch with public health departments. In order to mobilize the entire forces of the medical profession Dr. Milligan suggested that each health authority under this scheme should have an advisory committee consisting of representatives of the local Division of the British Medical Association. Such a committee, with the full power of the Association behind it, would be able to help the health authority enormously to deal with the problems with which it was faced. As regards Ireland the speaker considered that medical benefits should be included in the Saorstat health insurance scheme.

Dr. MAITLAND RADFORD (M.O.H., Shoreditch) agreed that there was a growing undercurrent of dissatisfaction, due to a fundamental lack of policy in the public health services. Inadequacy of individual purchasing power had, however, checked, diverted, or stopped the development of public health endeavour. Maternity and child welfare work had cut through this difficulty, and by intensive education had achieved most valuable results. He also cited the existence of a dental hospital in Shoreditch which provided treatment, for those living or working in the borough, on a graduated payment basis. Here was another real preventive effort, which aided poor persons who could not afford the fees of dental practitioners. More attention had been given to the treatment of tuberculosis than to its prevention, since personal economic considerations so often stood in the way of the latter. As to housing, the poorly paid worker could not afford the price of houses which conformed with modern hygienic requirements. Distribution of milk at welfare centres was inadequate, owing to the fact that many who needed and could not afford it were not classified as being entitled to receive it. On the answers to such questions depended the future of public health. Dr. C. BASTIBLE (M.O.H., Wexford) said that modern medical education had been changing in recent years, adopting a more preventive trend in both medicine and surgery. In Ireland preventive medicine was less divorced from curative than in England, but more co-operation was necessary. A system of record-keeping by dispensary practitioners on the lines of that in the national insurance scheme in Great Britain would be desirable, although some difficulties would attend its inception. There was some danger, however, that intensive organization might tend to sterilize individual effort. In insanity and nerve diseases prevention would be much more effective than the treatment of the established condition. The supply of milk must also be safeguarded, and those responsible for its distribution should ensure that it was obtained from pure sources. There was need for the introduction into the education of children and adults of hygiene courses. The public required a much fuller knowledge of this subject than it at present possessed. Professor C. A. BENTLEY (Cairo) said that individual purchasing power was an essential without which the ideals of public health could hardly be realized. Public health was purchasable, and was governed by economic considerations. This he had found true in Egypt and Bengal. Dr. D. MCKAIL (Glasgow) agreed that the time was fully ripe for an assessment of the relative importance of health services. In view of the history of these he concluded that the power of the central departments ought to be increased. Although many problems, such as that of housing, had been realized as urgent long ago, there had been a notable lack of remedial activity. Central departments should therefore be ordered to take the initiative in national health services, and not be obliged to wait on local stimulation. Local authorities ought to inaugurate new schemes, and improve and intensify many of those now existing.

Dr. BROWNLIE, in a brief reply, said that his original intention had been to provoke criticism, and he was gratified by the result. Many points had been brought up, and he hoped that there might be practical consequences in various quarters.

ISOLATION OF ENTERIC BACILLI

Professor W. J. WILSON (Belfast) read a paper on the isolation of enteric bacilli from sewage and water, and its bearing on epidemiology. He showed that before the typhoid bacillus had been cultivated it was known that water and food contaminated with sewage matter were the vehicles by which infection was conveyed, and that the measures necessary for its prevention—pure water supplies, good drainage, and suitable methods of sewage disposal—had been undertaken before the isolation of the bacillus by Gaffky in 1884. Although sewage was known to be infective when it entered a water supply, it was only in 1928 that Wilson at Belfast, by means of a new medium, succeeded in demonstrating the constant presence of typhoid bacilli in small amounts of sewage. Since 1928 other workers had had success with Wilson and Blair's medium, and had found not only typhoid, but paratyphoid bacilli and the various types of food-poisoning organisms to be frequent inhabitants of sewage. After an epidemic of paratyphoid fever at Epping Sir Alexander Houston had found enormous numbers of paratyphoid bacilli present in the effluent from the sewage works as it entered Cobbins Brook, a tributary of the Lea, and into which he estimated that on February 18th, 1931, over 33,000 million paratyphoid bacilli were being discharged. This was a serious menace to the health of East London, which was supplied by water from the Lea below the point of entry of this brook. Of course, the Lea water was well purified before being distributed, but to afford greater security chlorination of the whole of Cobbins Brook was at once undertaken and had been continued, since the paratyphoid bacilli had been found to persist in the sewage. The bacilli that were found were probably derived from healthy "carriers," and not due to the multiplication of the bacilli in the sewage works. One of the most notable victories of preventive medicine had been the reduction to an almost negligible figure of the mortality from enteric fever. It had, however, to be borne in mind that the infective agent of the disease had not been eradicated, but that its opportunities had been curtailed, and that the control of the disease would only be secured by the vigilance of sanitary authorities. Professor W. D. O'KELLY (Dublin) referred to the extensive work which had been done by Professor James Wilson to introduce more precise methods of isolating typhoid bacilli. These had certainly led to the view that this organism was ubiquitous. There still remained a great deal to be learnt as to its incidence and pathology. General improvements in sanitary measures undoubtedly had a hidden influence on various kinds of micro-

organisms, and should be pressed on. Dr. J. L. Brownlie (Edinburgh) emphasized the importance of the problem of the carrier. What was wanted now was some way of determining the degree of virulence of the organism. Professor W. J. Wilson, replying, said that there was at present no way of determining virulence in the case of the typhoid bacillus. It was difficult to keep carriers under observation, nor could they reasonably be treated by operations on the gall-bladder. Ordinary germicides seemed to have no curative value. Stools reeking of coal tar products had been found to teem with bacilli. Education of the public should have a really practical outlook: persons should be instructed, for example, to wash their hands after visiting the closet. Facilities in this respect were, however, seriously lacking. It was curious that there were so few typhoid outbreaks, despite the apparent liability to mass infection.

SECTION OF ORTHOPAEDICS

Thursday, July 27th

Fusion Operations on the Hip-joint

After Sir William de C. Wheeler, the President, had taken the chair, Dr. M. S. Henderson of the Mayo Clinic opened a discussion on the role of fusion operations as applied to the hip-joint. Such operations, he said, were commonly performed for the relief of paralytic conditions, such as infantile paralysis, in which an anatomically normal joint was physiologically unsound, for diseased joints in which there was a serious degree of disorganization, and in painful conditions resulting from trauma and mechanical derangement. Few cases with infantile paralysis could be expected to benefit from fusion of the hip, as the vast majority of patients with flail-hip had, in addition, uncontrollable paralysis of the knee and ankle; however, if the paralysis was localized to the muscles around the hip, fusion was to be recommended. In non-tuberculous arthritis and traumatic conditions the speaker had been very disappointed with the results of reconstructive operations, and was convinced that except in cases in which both hips were involved arthrodesis afforded a better prospect of relief. In tuberculosis his practice was always to arthrodese the hip unless there was some definite contraindication, such as the presence of active kidney or lung disease or severe local secondary infection. Although the practice at the Mayo Clinic had been confined chiefly to adults, there was every reason to believe that the operation should also be performed in children.

Mr. G. R. Girdlestone (Oxford) confined his remarks chiefly to tuberculosis of the hip, in the treatment of which arthrodesis could be employed to promote healing (especially in adults), and to prevent recurrence of disease or the development of late pain or deformity. It was his practice to establish the diagnosis in adult cases at the earliest possible moment—by biopsy, if necessary. If the patient's general and local condition was satisfactory he proceeded with immediate operative fixation. First, the infected joint was excised as thoroughly as possible (intra-articular arthrodesis), and then a broad flap from the outer table of the ilium was turned down and held in a slot in the great trochanter (extra-articular arthrodesis). Sometimes it was advisable to do the operation in two stages. In children, operation was deferred until serial *x*-ray films showed cessation of active disease as evidenced by recalcification. Preliminary intra-articular arthrodesis was only necessary when the joint cavity was filled with inflammatory debris. In the majority of cases extra-articular arthrodesis sufficed. In adults or children the great contraindication to operation was local sepsis. Cases with sinuses responded well to wide drainage followed by prolonged conservative treatment, and not infrequently spontaneous bony fusion ultimately occurred. In the treatment of non-tuberculous arthritis arthrodesis had a very definite place, but when the disease was bilateral it was essential that an operation, designed to allow movement, should be performed. A reconstructive operation of the Whitman type, or an extra-articular pseudarthrosis (as described by the speaker in the Robert Jones Birthday Volume), was to be preferred. Some excellent slides were shown demonstrating the remarkable powers of growth in extra-articular grafts.

Mr. W. R. Bristow was of the opinion that even in a case of infantile paralysis with a completely flail lower extremity great functional improvement followed fixation of the hip combined with stabilization of the foot and any form of treatment that would give the patient a slight degree of back-knee. In connexion with chronic arthritis of the hip he referred to the work of Mr. Max Page, who had operated on 150 patients with this condition. In his hands intra-articular arthrodesis had generally relieved pain, but fusion had occurred in only 50 per cent. For that reason Mr. Page now favoured the combined operation. Mr. Bristow agreed with the preceding speakers' advocacy of arthrodesis in children. The only serious danger was operative shock, and this was strictly proportional to the length of time of operation. Every effort should be made to complete this operation within forty-five minutes.

Mr. T. P. McMurray (Liverpool) objected to the depressing conclusions drawn from statistics of conservative treatment in tuberculosis. Almost invariably enthusiasts for arthrodesis referred to the results of conservative treatment as practised twenty or more years ago. Modern conservative treatment could be relied on to give a high percentage of successes; in a series of 150 of his own cases that had been followed for six or more years 70 per cent. of his patients were able to do full work, 25 per cent. had pain or deformity, and only 5 per cent. were dead. He drew a parallel between excision of the knee in children so much in vogue a few years ago, and the present boom in arthrodesis of the hip. He hinted that the latter would, like excision of the knee, sooner or later fall into disrepute. There was, however, a place for the operation in cases in which the *x*-ray film showed a small femoral head in a large acetabulum and in which sound fibrous ankylosis could hardly be looked for. Miss E. M. Holmes (Cardiff) quoted statistics from British, American, and Continental hospitals which led her to believe that conservative treatment properly carried out yielded a high percentage of cures. Arthrodesis had not the slightest effect on the healing of the disease, and, when successful, gave both surgeon and patient a false feeling of security. She claimed that even in adults conservative treatment was to be preferred. Mr. Harry Platt (Manchester) complained that the vast majority of statistics dealing with tuberculous arthritis were misleading, for the reason that inaccurate diagnosis was all too common. Children frequently suffered from transient arthritis of the hip that was certainly not tuberculous, and yet such cases often found their way into statistical tables as "cures." He supported the cause of arthrodesis. Mr. Whitchurch Howell was gravely concerned about operative shock in children, and asked how it might be reduced. Miss Forrester-Brown (Bath) had seen a number of cases in children in which recalcification never occurred in the so-called healing stage of tuberculosis. In such cases she found that after arthrodesis recalcification took place most rapidly, even before the graft had become soundly fused. The part played by the graft was undoubtedly biological as well as mechanical. Recent work in Bath had shown that the sedimentation test was of some value in indicating when the disease had become quiescent; she wished to know if other surgeons had found it useful.

In reply, Dr. Henderson observed that post-operative sinuses were far less common in adults after the combined as opposed to the purely extra-articular arthrodesis. He joined Mr. Girdlestone in advising this type of operation.

Hinge Grafting

Professor A. K. Henry (Cairo) read a short paper on hinge grafting, illustrated by lantern slides and a cinema film. The operation was of great value in such conditions as flail-foot, paralytic back-knee, and loss of digits. He had succeeded in placing grafts on both sides of the

knee-joint in such a way that they performed the function of a knee-cage. Hyperextension of the joint was impossible, and a limited though useful range of flexion was allowed. In a patient with large chondromata of the index finger he had removed the phalanges and half the metacarpal, making good the defect with a hinge graft. A fair degree of active movement was possible at the hinge, and the patient was able to lift a weight of two kilograms with the index finger alone.

PAINFUL FEET

Mr. PHILIP WILES read a short paper on the treatment of painful feet. The causes of this condition were chronic foot strain, minor deformities such as corns, and chronic arthritis. He insisted that a normal foot was characterized by free mobility in, and adequate muscular control of, all its joints. A foot might be perfectly flat in repose, but if the patient was able to produce an arch voluntarily the foot must be classed as normal. This was best illustrated by the so-called flat-foot of ballet dancers. Almost all foot trouble could be referred to the presence of intra- or peri-articular adhesions resulting from infection or trauma. Pain occurred when these adhesions were stretched in the ordinary process of walking. Treatment with supports could at best be only palliative, and might even do harm by leading to further stiffness in the tarsal joints. Clearly the only rational treatment was to restore full movement by manipulation sufficient to break down all adhesions, followed by exercises to restore muscular control to normal. Almost every case of foot strain could be cured in this way and, in carefully selected cases, arthritic feet could at least be made comfortable.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Thursday, July 27th

THE ENDOCRINES IN GYNAECOLOGY

With a Vice-President, Miss ALICE BLOOMFIELD, in the chair, Professor EMIL NOVAK (Baltimore, U.S.A.) opened the discussion on the gynaecological aspects of endocrinology. He began by reviewing the principles underlying present-day gynaecological endocrinology. Three important discoveries were described: the menstrual histological cycle of the endometrium; the ovarian follicle hormone (folliculin, theelin, oestrin), which governed the growth of the endometrium; and the anterior pituitary hormone (prolan), which activated the ovarian function and caused ovulation and corpus luteum formation. The action of the corpus luteum hormone (progestin) in changing the folliculin-stimulated endometrium into a secreting mucosa was described in some detail. In recent years much doubt had been thrown on the view that ovulation was a necessary preliminary to menstruation. The speaker considered that it was not, and he thought that some cases of sterility were due to anovulatory menstruation. Premenstrual curettings of these cases would show an absence of the progestin change in the endometrium. The actual cause of menstrual bleeding was a sudden lowering of the folliculin level in the blood. The present achievements of gynaecological organotherapy were not great. Many workers expected too much. Injections of folliculin could never stimulate a non-functioning ovary. Progestin was not yet available for clinical use. Prohibitively enormous doses of both these substances were required to reproduce the changes of the menstrual cycle in the human endometrium. More promising results were obtained by prolan preparations in the so-called functional bleedings. Sometimes the bleeding stopped within a few hours of the injection. Folliculin might be useful in some menopausal disturbances. The practice of gynaecology without at least some knowledge of endocrinology was fast becoming an incongruity. It was this asset, plus a knowledge of gynaecological pathology, which marked the difference between the real gynaecologist and the mere gynaecological operator.

Professor R. W. JOHNSTONE (Edinburgh) read a paper in which points of special interest to the practitioner were discussed. He described the Pregnancy Diagnosis Station in the Animal Genetics Department of Edinburgh University, where practitioners could have the Zondek-Aschheim test carried out on specimens of urine: 6,600 samples had been tested, with only 2 per cent. error. It was interesting to find that a low oestrin content was often followed by abortion. Cases of amenorrhoea might be associated with either excess or deficiency of oestrin. Regarding therapy, he felt dismayed at the indiscriminate use of glandular extracts, which had been created almost exclusively by the deluge of often misleading and never disinterested brochures from manufacturing chemists. He made a strong plea for the examination of the patient's hormonal state before starting treatment, and urged the use of a laboratory such as the Pregnancy Diagnosis Station for this purpose. Gonadotropic hormones (prolan) were disappointing in primary amenorrhoea, but more hopeful in secondary amenorrhoea. Striking success had been obtained in the bleedings of puberty and in cases of metropathia haemorrhagica. They were also useful in habitual abortion, and possibly in dysmenorrhoea, where they might lessen the activity of the uterine musculature by stimulation of the corpus luteum.

Dr. B. P. WIESNER (Edinburgh) pointed out some of the complexities of the subject. No one had yet disproved the work by Dr. Crew and himself, which pointed to two anterior pituitary hormones: he believed that three or even four factors existed. There were also reactor factors present in the body which governed the effect of a hormone in a particular animal. Anterior pituitary hormones influenced behaviour: a virgin female rat would assume maternal behaviour after injection of these preparations. In 1,000 cases of secondary amenorrhoea there was no lack of the essential hormones in the urine; it was therefore useless to inject these patients with expensive extracts. Dr. DOMINIC J. CANNON (Kildare) thought that menstrual bleeding was an active process, and could not be explained by withdrawal of a hormone. If the previous speakers were correct dysmenorrhoea would occur in metropathia haemorrhagica; but this was not so. Dysmenorrhoea was a neuro-muscular derangement. He had treated such cases by resection of the presacral nerve. Dr. N. McI. FALKINER (Dublin) showed a series of photomicrographs of the corpus luteum at various stages. He believed that a hormone actively stimulated menstruation, and simultaneously caused bleeding to take place in the corpus luteum. No haemorrhage was seen in the corpus luteum of pregnancy. Dr. L. CARNAC RIVETT suggested that the uterine glands themselves produced a hormone. Lieut.-Colonel SMITH, I.M.S., spoke of the use of thyroid medication in prostatic trouble in the male, and suggested its use in stout menopausal women. Dame LOUISE MCILROY spoke of calcium metabolism. Amenorrhoea was often a sign of early phthisis. She used corpus luteum and thyroid extract combined with potassium chlorate in cases of habitual abortion. A psychological shock might alter the function of the endocrine glands. Dr. E. LEWIS LILLEY (Leicester) and Mr. E. FARQUHAR MURRAY (Newcastle) asked if ovarian hormones were active when given by the mouth. Miss ALICE BLOOMFIELD discussed the use of anterior pituitary hormones in habitual abortion.

In reply, Dr. NOVAK said he doubted the value of urine hormonal tests: blood tests were better, but difficult to carry out. Animal tests showed that ovarian substance had no action when given by the mouth. Theelin had some activity by mouth, but the dose had to be five to thirty times that of a hypodermic dose. The cause of bleeding in metropathia haemorrhagica was a rapid variation of the balance between the anterior pituitary hormone and folliculin content of the blood.

Dr. P. M. F. BISHOP read a paper on a modification of the Friedmann test for pregnancy. The Friedmann test on rabbits was easier to carry out than the Zondek-Aschheim test in mice, but hitherto had not been so accurate. He discussed the sources of error, and showed that these could be avoided by performing a laparotomy and inspecting the ovaries before injection of the urine to be tested. If the results were negative he injected known pregnancy urine, and after thirty-six hours again performed a laparotomy. By using the animal as its own control he had had no error of diagnosis in a series of 104 tests.

SECTION OF SURGERY

Thursday, July 27th

Disease of the Biliary Tract

With the President, Professor C. J. MacAuley (Dublin) in the chair, Professor D. P. D. Wilkie (Edinburgh) opened a discussion on surgical diseases of the biliary tracts. He said that as the subject was so large he intended to focus attention on certain points which were of practical interest to the general practitioner—namely, the local and general effects of diseases of the bile passages, indications for operation, and the results. Apart from the local effects produced by gall-stones, obstruction, carcinoma, pancreatitis, and hepatic cirrhosis, he had been struck by the distant results of infection. Rheumatism, myocardial changes, fibrositis, and albuminuria had been found to be associated with focal sepsis in the gall-bladder. He emphasized the importance of the barium meal in the diagnosis in certain cases, and he had found that in as many as 10 per cent. of females diagnosed as cholecystitis duodenal ulcer was present. Professor Wilkie considered indications for operation under the headings: (1) Recurring biliary colic ; (2) chronic dyspepsia ; (3) acute obstructive cholecystitis ; and (4) stone in the common duct. In the third group he did not, as a rule, advise operation in the acute stage, owing to the associated hepatitis and the increased vascularity and oedema of the base of the right lung, which resulted from the arrest of diaphragmatic movements. Operation, however, had to be carried out occasionally, when the acute symptoms did not subside or increased within forty-eight hours. Cholecystostomy was usually safer in these circumstances. Operation was, as a rule, performed in from seven to ten days, and the speaker mentioned the importance, in performing cholecystectomy, of leaving a cuff at the neck of the gall-bladder, since the exact anatomy of the ducts was obscured by oedema. Patients who had once had acute obstructive cholecystitis were subject to recurring attacks. When a gall-stone was present in the common duct operation was imperative. In discussing preoperative treatment Professor Wilkie said that he advised, when possible, reduction in weight by as much as two stone by dieting and exercises. Jaundice and hepatic insufficiency should be actively treated by the administration of fluids and glucose, the injection of calcium chloride, and sometimes blood transfusion. Surgery, when timely, was curative and safe, but free access and careful laparotomy, especially examination of the common duct and pancreas, were essential.

Professor H. L. Barniville (Dublin) said that the results of modern treatment of biliary diseases were, as a rule, excellent. Gall-stones undoubtedly occurred as the result of a general disturbance in metabolism, and when infection supervened he was of the opinion that the pathway was not the common bile duct. Conservatism still had a place in the treatment of diseases of the gall-bladder and biliary passages. Referring to the group of cases of dysfunction of the bile tracts, he said that typical gall-bladder symptoms were produced by spasms of the sphincter and muscularis mucosae of this viscus. He agreed with Professor Wilkie that many cases of rheumatism and fibrositis were improved after removal of the biliary focus of infection. In the case of a woman with auricular fibrillation and cardiac failure cholecystectomy, performed over one year ago, had apparently relieved the patient of her trouble, and cholecystostomy in a man with severe secondary anaemia had produced a rapid improvement in the blood picture, and he had remained well in spite of the fact that he still had his gall-bladder. In conclusion Professor Barniville thought pulmonary complications—infarction and collapse of the lung—were on the increase, and that he could not find any really tangible assistance in their prevention. In these cases, however, the patient was invariably of what might be called the "nervously inert" type, and hence breathing exercises, movements of the limbs and trunk, and the avoidance of the unnecessary abdominal binder were essential after any upper abdominal incision.

Mr. G. H. Edington (Glasgow), in an analysis of 200 cases operated on for gall-bladder disease, said that organisms had been discovered in over half the cases investigated bacteriologically, and that in 37 per cent. marked fibrosis was noted in the subserous layer of the gall-bladder. It was doubtful whether cholecystitis took a share in the production of gall-stones, but it was probable that the presence of stones might excite or aggravate inflammation of the gall-bladder. Mr. Edington considered that, apart from conditions requiring anastomosis of the gall-bladder to the duodenum or stomach, and cases in which there was reason to suspect stone in the common duct, the choice of operation lay between cholecystostomy and cholecystectomy. With cholecystectomy the patient was rid of a presumably diseased organ. It must be remembered, however, that there was probably also some degree of hepatitis or pancreatitis present. Cholecystectomy did not provide the necessary drainage, and unless the gall-bladder was markedly diseased there was something to be said for employing it as a natural drainage tube. Another objection to cholecystectomy was that any subsequent operation was more difficult. The late results were undoubtedly good. Cholecystostomy would seem to be indicated when, with a gall-bladder not too flagrantly diseased, there was evidence of hepatitis or pancreatitis, and drainage was necessary for a time.

Professor R. E. Kelly (Liverpool) stressed the frequency with which stones were found in the common duct without jaundice and in some cases without pain. In all cases the common bile duct should be viewed, and if it was dilated it must be opened. If exploration was unsatisfactory, help might sometimes be given by a transduodenal incision. An early growth of the ampulla had been discovered in this way. The duct was occasionally opened and no stone observed, but in his experience this only occurred in about 17 per cent. of cases. Stones were sometimes present in the hepatic ducts ; they were of the pigment variety, and often very difficult to remove. As a rule a stone ulcerated into the second part of the duodenum, but he had on one occasion seen a stone half-way through the stomach wall. Professor Kelly mentioned a case in which the mesentery of the small intestine was infiltrated with bile, which must have leaked into the mesentery at its attachment over the pancreas. In this instance there was a further collection of bile behind the second part of the duodenum. He thought that many rounded gall-stones were conglomerate, a mass of small stones being compressed like a snowball. When the common bile duct was opened white bile generally indicated a bad prognosis, whereas frothy bile meant there was a large opening into the duodenum. The speaker briefly referred to the reconstruction of the common duct, and exhibited an *x*-ray photograph showing that the catheter used at the time of the plastic operation was till present after nine months. Carcinoma of the gall-bladder was always associated with gall-stones, and removal of the growth gave disappointing results. He thought that the complete transverse incision gave excellent access, and pointed out that the incision opened itself up when the back was arched. One had only to look at the transverse creases on one's waistcoat to appreciate the fact that the incision healed without tension.

Mr. A. J. Walton limited his remarks to causes of obstruction of the common duct. The different causes of obstruction and their relative frequency, shown by a chart of the speaker's figures, included 662 cases of gall-stones, with 103 obstructions of the common duct, forty-four cases of recurrent calculus, thirty-four of reconstruction of the common duct, twenty-eight of carcinoma of the common duct, forty-seven of carcinoma of the pancreas, and sixty-one of chronic pancreatitis. Mr. Walton described the symptoms of stones of the common duct, and gave the reasons why such stones were not infrequently overlooked at operation. He illustrated by means of wall diagrams the methods by which the common duct might be injured. The cases fell clinically into three groups: (1) those injuries recognizable at the time of operation ; (2) post-operative fistula with the escape of bile (here there was no back pressure, but the duct was narrow) ; (3) complete obstruction of duct—these cases were a dangerous risk owing to back pressure, but

the dilated duct was easier to find. Carcinoma of the common duct might occur at different sites, and the cases fell into four clinical groups. The symptoms of these groups were mentioned, and the methods of radical and palliative treatment described. Carcinoma of the pancreas was relatively common, and nearly 70 per cent. of the cases gave rise to obstructive jaundice. Chronic pancreatitis was also relatively common, and about 50 per cent. of the cases caused obstructive jaundice. Mr. MICHAEL SMYTH said that examination of the bile obtained by duodenal intubation was a most important method of investigation. The presence of mucus, leucocytes, and cholesterol should be sought for. Chronic gastritis was present in about 25 per cent. of cases of cholecystitis, and in about 50 per cent. of cases of gall-stones. Treatment of this gastritis by lavage with hydrogen peroxide, one drachm to the pint, was useful. He said that large doses of hexamine, as recommended by Hurst (100 grains three times daily), pre-operatively and post-operatively, helped to clear up the hepatitis and improve the infection. When drainage of the gall-bladder had to be carried out a self-retaining catheter was best employed. If the common duct had been explored he considered it advantageous to dilate the ampulla of Vater by means of Desjardin's forceps and to stimulate the drainage of bile down the duct by the administration of magnesium sulphate by mouth. Mr. Smyth gave an analysis of twenty-four cases of acute perforation of the gall-bladder, which he had obtained by the courtesy of the surgeons of the London Hospital. One patient was moribund on admission, and died before operation could be attempted. The remainder underwent operation, and there were eight deaths. Cholecystectomy had been successfully performed in one case. In the remainder, cholecystostomy with drainage of the peritoneal cavity had been carried out.

Mr. MCADAM ECCLES asked, Was he unique in the Section in having no gall-bladder? He collapsed on the same day last year as he was going to this Section. The diagnosis had been cholecystitis, and the symptoms were horrible pain and local tenderness, almost unbearable, and removed by morphine and confidence in the surgeon. Preparation for operation at his old hospital was excellent, and the anaesthetic and operation, five days later, just what they should be. Post-operative discomfort was far less than he had imagined, and was mainly due to flatulence. He had lost two and a half stone after the attack, and later recovered one stone. Careful after-treatment should be stressed, even to a surgeon—diminution of fats, no olive oil with salads, sugar superseded by saccharine, and so on. Exercise was essential, and as a rule, the bowels had to be helped. There was no hernia through this vertical scar, and he had much for which to thank the surgeon and nurses. Professor H. S. MEADE (Dublin) said that clinical symptoms were of more importance than the dye test. He had noted that tenderness was very often elicited by light pressure over the eighth and ninth costal cartilages. It was easier to operate on the acute cholecystitis than the subacute, and he thought that it was during the subacute stage that oedema of the lung and change in the liver occurred. The jaundiced case should not be left too long before operation was carried out. Mr. W. SALUSBURY (Northampton) said that complete exposure was essential, and showed a useful self-retaining retractor which could be manipulated with one hand. Mr. W. H. OGILVIE recommended surgical treatment as soon as the diagnosis of gall-stones was established. The characteristic pain of gall-stones was unmistakable, and should be sufficient to lead to diagnosis. The pain was very severe, sudden in onset, but not long continued. It had the rhythm of a colic. The pain was above the umbilicus and medial to the linea semilunaris. It was accompanied by retching but rarely relieved by vomiting. The attacks were unpredictable in origin and course. When attacks such as this were met with, gall-stones might be diagnosed with certainty and operation recommended with confidence. The fundamental risk of infected gall-bladder attacks was that of liver damage, and unfortunately many patients only came for surgical treatment in a condition of advanced hepatic insufficiency. Mr. Oglivie recommended continuous intravenous infusion by the drip method for this type of case, and spoke of this as the greatest surgical advance of the past ten years.

Professor WILKIE, in reply, said that in his experience lung complications were relatively rare. He used Kocher's incision, but thought that the transverse incision was very good. The surgeon must be sure before closing the abdomen that the common duct was empty, and he agreed with Mr. Walton that small and soft stones and biliary sand were not palpable. He advocated, when necessary, preliminary exploration of the common duct, with a small needle and syringe, since the condition of the bile gave a clue to the condition of affairs. Adequate exposure was the keynote of the surgery of the biliary tract. He did not agree with Mr. Smyth that gastritis was so common. Investigation appeared to show that hexamine, though it could be demonstrated in the bile, had little effect on the infection. With regard to the tender ninth costal cartilage, he had noted that more often there was a tender spot behind in the ninth intercostal space. As pointed out by Mr. Ogilvie, operation at an early stage was safe and very successful. If the liver was damaged the risks of operation were much increased. He agreed that intravenous glucose saline was the main essential in pre-operative and post-operative treatment in these advanced cases.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Thursday, July 27th

SEROLOGY AND THE PATHOGENIC COCCI

With the President, Professor J. M. BEATTIE (Liverpool), in the chair, the opening paper, on the present position of serology in relation to the pathogenic cocci, was read by Dr. H. J. PARISH. (It is printed in full in this issue of the *Journal* (p. 277).

Dr. R. CRUICKSHANK (Glasgow) dealt first with staphylococcus and *Streptococcus pyogenes* infections. He pointed out that it was difficult to find any direct evidence of the importance of the exotoxins of these organisms in the clinical manifestations of infections. Consequently the therapeutic test—that is, the value of staphylococcal and streptococcal antitoxin in the treatment of corresponding infections—became correspondingly important. He gave personal experience, and quoted the work of Glasgow colleagues in the employment of staphylococcal and streptococcal antitoxin in such conditions as osteomyelitis, carbuncle, scarlet fever, erysipelas, puerperal sepsis, cellulitis, and streptococcal septicaemia. Regarding antibacterial serums, he referred to experience with anti-pneumococcal serums as illustrating the difficulties met with in their practical application. The virulence of the pneumococcus was closely correlated with its specificity, and therefore, to counteract the infection, a highly specific antibacterial serum was required. Fortunately, in the case of lobar pneumonia, although there were over thirty serological types of the pneumococcus, two-thirds to three-quarters of the cases were due to Types I and II pneumococcus, and antitoxin could therefore be given practically and economically. But in other bacterial infections—for example, those due to the streptococcus—there was a multiplicity of infective serological types, and the production of antibacterial serum became a practical impossibility. This was the obstacle which the serologist must try to overcome in the future. Dr. E. N. DAVEY (Gloucester) referred to his experience with puerperal fever, and mentioned that he had never known of recovery in a case of septicaemia with a positive blood culture for haemolytic streptococci. Professor BEATTIE thought that experience showed that serum treatment of meningitis was of decided value if the correct type of serum was given and if treatment was continued for four or five days.

In answer to further questions Dr. PARISH agreed that there was every reason to expect good results with toxoid treatment for staphylococcal infections. He thought cases of streptococcal septicaemia with a rash were the most likely ones to benefit by antistreptococcal serum. In answer to questions about the addition of complement to

protective serums, he suggested that this might be of value when spinal injections of serum were given, but complement was not necessary for intravenous injection. A hearty vote of thanks was accorded to Dr. Parish for what the chairman described as a useful and stimulating paper.

LYMPHADENOMA

Dr. C. E. VAN ROOYEN (Edinburgh) read a paper on recent work on the aetiology of Hodgkin's disease. He reviewed the history of the disease, and described the recent advances in our knowledge made by Dr. M. H. Gordon. In work published in 1932 Dr. Gordon reported that intracerebral inoculation of rabbits with suitable suspensions of lymphadenomatous tissue was followed in three or four days by highly characteristic changes affecting the central nervous system of the animal. Dr. van Rooyen gave a series of pictures illustrating this encephalitic syndrome, and described how it could be elicited. His experiments had proved that the encephalitic syndrome produced in the rabbit was specific for Hodgkin's lymphoid tissue, and consequently might be utilized as a biological test for the diagnosis of this disease. The precise nature of the syndrome produced in the rabbit was not the outcome of a simple traumatic and inflammatory change produced in the brain of the animal, but was probably due to the action of either a specific toxin or a filterable virus, derived from the human subject suffering from Hodgkin's disease. The present available data regarding the nature of this pathogenic agent neither confirmed the possibility of these effects being the results of a specific toxic activity nor excluded them from being due to the action of a filterable virus.

SECTION OF OPHTHALMOLOGY

Thursday, July 27th

VISUAL FIELDS AND INTRACRANIAL LESIONS

After the President, Mr. F. C. CRAWLEY (Dublin), had opened the meeting by welcoming the members to Dublin, Mr. A. A. MCCONNELL (Dublin) and Mr. H. M. TRAQUAIR (Edinburgh) opened the discussion on fields of vision in connexion with intracranial lesions. Their papers were printed in the *Journal* of August 5th (pp. 226 and 229).

Mr. NORMAN M. DOTT (Edinburgh) stressed how invaluable quantitative perimetry had proved in practice. Cases of tumour compression of each optic nerve simultaneously, and of carotid pressure, detected by arterial radiography, were shown. He described the distinction between true hemianopia and the irregular field depressions of post-neuritic optic atrophy. The results of other forms of compression in various situations with the exact mechanism of production of the field defects were also discussed. He doubted that permanent hemianopic defects occurred in true migraine, and showed that resection of Meyer's temporal loop did not result in hemianopic field defects.

Miss EUPHAN MAXWELL (Dublin) described a case of invasion of the left occipital lobe by the common lung fluke of Japan, and two cases of pituitary gland tumour in middle-aged women, contrasting the slow, continual progressive loss of vision in the one case as compared with the marked fluctuations in the other.

Mr. HUGH CAIRNS, in emphasizing the importance of quantitative perimetry in the diagnosis and management of chiasmal lesions, illustrated his remarks by cases of pituitary adenoma. Scotomatous bitemporal hemianopia was the most common defect in the earlier stages of pituitary tumour, so that examination of the peripheral field only precluded early diagnosis. Examples of recovery of fields after operation on pituitary adenomata were demonstrated.

Mr. G. JEFFERSON (Manchester) compared the evolution of perimetry with that of the investigation of cutaneous sensation. He confined his remarks to meningiomata of the tuberculum sellae, where diagnosis might be made with certainty by perimetry alone. Such cases were puzzling because *x*-ray examination was negative. Three cases of his illustrated the fact that careful perimetry alone would give the surgeon a chance of operating early and with success. Pituitary tumours did not always lead to recognizable somatic changes in the hands, face, etc.; they might reach large dimensions without altering the patient's appearance. Mr. P. G. DOYNE asked for an explanation of the directional movement of the edge of the field. Dr. L. W. WERNER (Dublin) gave details of an injury to the occipital lobe in a boy, and asked for information as to the prognosis.

Mr. TRAQUAIR, in reply, said that the movement of the field edge was due to nicking of the optic nerve by the dura mater covering the upper edge of the optic foramen. In chiasmal retrobulbar neuritis the clockwise or anti-clockwise movement was inexplicable. With regard to traumatization of the occipital lobe, that part of the brain substance which was affected purely by oedema would recover with resumption of function. Prognosis in such a case was facilitated by perimetry with serial objects. Mr. DOTT illustrated the first part of Mr. Traquair's reply by reference to one of his cases.

SECTION OF DISEASES OF CHILDREN

Friday, July 28th

VITAMINS IN PAEDIATRIC PRACTICE

With a Vice-President, Dr. KATHLEEN F. LYNN (Dublin), in the chair, Dr. L. J. HARRIS (Cambridge) opened a discussion on the value and dosage of vitamins in paediatric practice. Having shown the essential need for prophylactic measures, Dr. Harris discussed the methods available for giving vitamins. While cod-liver oil had proved of great worth in the past, it was sometimes difficult to reach a dose of this substance large enough to give complete protection without upsetting digestion. The modern preparations of irradiated ergosterol were recognized by a majority of workers, he said, as the best measure of wholesale protection. The use of such potent substances, however, raised at once the question of dosage, and, after stressing the need for expressing this in terms of the international standard, he suggested that an infant at 6 weeks of age might be started at 250 to 500 units daily, and gradually increased to 1,500 by the end of the first year. (This is equivalent to nearly five teaspoonfuls of good cod-liver oil.) From a public health standpoint it was probably best to incorporate irradiated ergosterol in the milk, either as was already done in certain dried milks, or by a wider use of irradiated milk—a method which would be of more value when the technical processes were more fully standardized. In the cure of rickets Dr. Harris recommended irradiated ergosterol as the method of choice, the suitable maximum curative dose for a severe case of rickets in a child between 1 and 2 years of age being about 5,000 international units of vitamin D daily. (This was about fifteen teaspoonfuls of cod-liver oil.) This raised the question of overdosage, and he argued that the risk was a real one, but was no reason for not using the remedy so long as the manufacturer's directions supplied with the commercial preparations of vitamin D were rigidly followed. For the human subject the toxic dose was quite close to the optimum curative dose, probably only about three times as much. Deficiency of vitamin A caused a characteristic abnormality in certain cell structures; vitamin B deficiency interfered with carbohydrate metabolism, leading to accumulation of lactic acid, and especially affecting the heart and nervous system; deficiency of vitamin C led to functional failure of certain highly active cells, especially in relation to the taste; while vitamin D appeared to have a more purely chemical effect upon calcium and phosphorus metabolism, controlling more especially the "net absorption" from the intestine. It followed from this that vitamin D was the proper remedy for infantile tetany and for the prevention of rickets in coeliac disease. Nursing and expectant mothers also required extra vitamin D. In conclusion, Dr. Harris spoke against the use of parathormone in tetany, since it did not influence the absorption of calcium and phosphorus.

Dr. W. R. AYKROYD (Geneva) agreed that correct nutrition was not a matter of instinct, a fallacy which

died hard. At the present time good nutrition was more likely to be found associated with a high degree of education and civilization than with primitive habits of life. In Southern Europe, and in most of the poorer countries of the world, children lived on a diet mainly composed of cereals. Such a diet was defective, and the children were below the physical standards of the school medical services in Great Britain, which, in turn, were below those in America. In regard to infants, Dr. Aykroyd continued, it was possible to think in terms of actual food factors, and a fairly exact programme of vitamin and mineral requirements could be worked out. In older children on a mixed diet the problem was not so simple, and he suggested that in judging the worth of any particular regime it should be possible to use as criteria the amounts of the more valuable foodstuffs present, such as milk, eggs, green vegetables, butter, etc., rather than in terms of actual food factors. This had the merit of being readily understood by the public. While there were as yet no fixed standards of vitamin requirements past the age of infancy, it seemed clear that the average child of the lower classes did not receive enough of those foods which were the most valuable sources of vitamins and mineral salts. Large-scale experiments had amply proved the value of extra milk in the dietary for such children. Finally, Dr. Aykroyd criticized the height and weight standards in use in England, observing that the current conception of a normal healthy child was largely based upon a study of children whose diet fell far short of perfection.

Dr. Colman Saunders (Dublin) asserted that in his experience it was unusual to find a child between 1 and 2 years of age without some evidence of old or active rickets. This was true even of breast-fed children, and he thought this was because the maternal diet was often very defective in vitamin D. He had seen three examples of tetany in breast-fed children this year, and he thought that it was not generally realized that breast milk did not contain more vitamin D than cow's milk, the latter, however, being given diluted, so that the baby got less of this vitamin when artificially fed. Dr. Saunders thought that irradiated ergosterol should be given to the nursing mother or to the baby during the winter months. In the case of the artificially fed baby it was important to consider the balance of the diet as well as its deficiencies in relation to rickets. He regarded tetany as commoner than was generally realized, and he had obtained good results in the treatment of the paroxysms of whooping-cough and idiopathic convulsions at school age by means of calcium and vitamin D added to the diet. Dr. H. E. Magee (Aberdeen) stressed the importance of the balance of the constituents in a dietary in the maintenance of normal nutrition, too much attention, in his opinion, being sometimes attached to the individual elements. He drew attention to the significance of blood phosphatase as an indication of impending breakdown in calcium and phosphorus metabolism. Dr. S. W. Clausen (Rochester, U.S.A.) mentioned the giving of extra vitamin B to children who were not gaining weight, and he pointed out that the extra carbohydrate intake might have something to do with the good results obtained. As regards vitamin A deficiency, he described recent experiments made to correlate the level of carotene in the blood with susceptibility to infection, the results showing only a slight relation. Dr. Clausen mentioned, in conclusion, the possibility of curing xerophthalmia with carotene. Dr. H. P. Wright (Montreal) spoke especially of the value of the potato as a source of vitamin C. He had recently found that four tablespoonfuls of mashed potato daily would completely protect a child from scurvy, and double this amount effected a rapid cure. This source of vitamin C was much cheaper than the orange. Dr. L. G. Parsons (Birmingham) said that he did not see anything like the same number of cases of rickets now compared with some years ago, and he thought statistics such as the opener had quoted on the prevalence of rickets should be accepted with caution. He mentioned that vitamin D obtained from irradiated milk seemed to be better utilized by the body than when it was taken in the more concentrated preparations. Dr. Parsons stated that he had seen five examples of pellagra in this country. Dr. Catherine Chisholm (Manchester) spoke of the value of heliotherapy, stressing that the wholesale administration of irradiated ergosterol presented many practical difficulties. "Good mothering" was, in her opinion, a very important part of the prophylaxis of rickets.

The Chairman pleaded for a return to the natural state of man as an "irradiated animal," and urged that the smoke over the big cities was a very serious factor in producing rickets. She quoted some experiments which showed the value of irradiating the nursing mother.

Common Sense in Paediatrics

Dr. Edouard Ceresole (Lausanne) read a paper on "Childhood, Common Sense, and Medicine," emphasizing that paediatricians still showed more interest in diseased conditions than in prevention. He instanced the problem of "breeding" as applied to the human race, and pointed out that in his own country, where natural advantages ought to have enabled them to produce a very fine breed of humans, they were still much behind in matters of hygiene. As regards the question of fresh air and sunlight, the speaker thought that these natural healers were still largely neglected. Artificial sunlight he regarded, with Rollier, as a very poor substitute. Dr. Ceresole emphasized, as a visitor, the striking contrast seen in England between the splendid physique of the public-school boy and that of the child from a poor district—a remarkable example of the effect of environment, in his opinion. In conclusion, he stressed the need for the medical profession to take a definite stand upon the alcohol problem.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

Friday, July 28th

Poliomyelitis

At the second meeting of the Section, under the presidency of Dr. Gordon M. Holmes, the opening paper on the epidemiology and treatment of poliomyelitis was read by Dr. F. M. R. Walshe. He said that few nervous diseases had been subjected to such intense and fruitful study of recent years as poliomyelitis. The findings necessitated an almost complete revision of previous conceptions of the disease. Whereas up till five years ago it had been regarded as an acute specific fever consisting of a short-lived stage of general infection followed by an invasion of the meninges, and finally infection of the nerve cells, as shown by paralysis, the point was now being reached when the disease must be regarded as primarily and exclusively an infection of nervous tissue with no initial stage of systemic infection. The corollary from this was that the division of poliomyelitis into preparalytic and paralytic stages was an artificial one, and without pathological basis. This had important bearings on the question of serum therapy. Flexner had shown that, in monkeys, serum to be effective must be injected within twenty-four hours of the inoculation of the virus. In the twenty years since Netter introduced serum treatment no reliable statistical evidence of its efficacy had been produced, whereas the variable dosage and means of administration claimed as successful by different authors suggested that the value was *nil*. The results obtained in the best controlled series of cases yet available, in the New York epidemic of 1931, showed a slightly lower rate of paralysis in cases not treated with serum. The speaker considered that there was no reliable evidence that serum was of any value in treating the human disease, but doubted if hard facts would be equal to the task of cooling therapeutic enthusiasm.

Dr. R. W. Fairbrother (Manchester) said that the outstanding epidemiological features of poliomyelitis were its wide distribution but low incidence, its predilection for children, and its seasonal variation. Up to the present only one immunological strain of the virus had been obtained, but this was capable of variation in its virulence. The comparative immunity to the disease enjoyed by

adults was variously explained as due to the acquirement of immune bodies by one or more subclinical infections, and by the theory of " non-specific maturation," which supposed that the nervous system as years went by acquired an increased resistance to infections in general. For the latter theory there was little evidence. Dr. Fairbrother referred to his work with Hurst, showing that in monkeys inoculated with virus into the brain, or into the sciatic nerve in such a way that the medullary sheaths were injured, the incidence of the disease was 100 per cent. The proportion of cases developing the disease after intranasal application of the virus was appreciably less. The extension of the virus in the nervous system had been proved to occur by axonal spread, and the virus was subsequently found in the greatest quantity in the medulla and the enlargements of the spinal cord. The action of the virus was primarily upon the nerve cells, the meningeal reaction being secondary. Turning to treatment, the speaker advocated the use of gargles of oxidizing agents, such as hydrogen peroxide or potassium permanganate, both as a prophylactic and during the convalescent period. He considered the prospect of producing active immunity to be very remote, as this necessitated the use of active virus with its attendant dangers. He believed that, while its value was still *sub judice*, the use of immune serum in the treatment of the milder cases was in accordance with theoretical considerations, and should be further tested. He made a plea for the further testing of immune horse serum, the most powerful antiviral agent known.

Dr. J. PURDON MARTIN remarked that if the view expressed by Dr. Walshe that poliomyelitis was solely a disease of the nervous system were accepted, it would necessitate the revision of many of our conceptions of its nature and epidemiology. The speaker considered the evidence in favour of a general systemic infection to be overwhelming, and referred particularly to the marked febrile disturbance, unlike that occurring in most cases of encephalitis, the general lymphatic hyperplasia, the occasional isolation of the virus from blood, and the development of immune bodies in the blood. He noted the occurrence of poliomyelitis after certain cases of fracture, when the paralysis was most severe and lasting in the injured limb, and also cases of bulbar poliomyelitis which had followed tonsillectomy or acute tonsillar infection. While accepting the view of Fairbrother and Hurst that in ordinary cases the portal of entry of the virus was from the nasopharynx, via the olfactory nerves, the speaker believed that in exceptional circumstances the virus might be conducted by the nerves of the limbs or the bulbar nerves, in which case the major incidence of the paralysis would be upon the affected limb and medulla respectively. He considered it probable that the nervous and systemic invasion occurred concurrently, and that the time factor between them might vary. In such cases, if the systemic invasion preceded the neural, the development of antibodies was likely to be rapid and paralysis slight. Should the neural invasion precede the systemic the damage to the nervous tissue was likely to be great. Dr. Martin referred to the continued existence in textbooks of elaborate classifications of clinical types having little foundation in fact. He would prefer to group the cases as spinal, brain-stem, and abortive. He doubted the existence of an encephalitis as a manifestation of poliomyelitis, and quoted the experimental fact that the cerebral hemispheres themselves appeared to be particularly resistant to the virus even in direct inoculation, merely acting as vehicles for axonal spread to the brain-stem and spinal cord. Referring to treatment, he believed that some of the early successes claimed for immune serum were due to its use at a time when preparalytic diagnosis was becoming possible. It was unwise to expect too much of serum, but, at any rate, in the early stages theoretical considerations supported its use.

Professor S. HAUGHTON (Dublin) prefaced his remarks on the orthopaedic treatment of cases of poliomyelitis by reminding the meeting of the principles laid down by R. W. Lovatt of Boston. The disease was to be regarded as having three phases: (1) The acute attack, ending with the total disappearance of muscle tenderness. (Treatment during this period consisted of complete physiological rest and splintage of affected muscles in a position of relaxation.) (2) The stage of spontaneous recovery, lasting two to three years. (Treatment consisted of splintage in the over-corrected posture, graduated massage and muscle training, and local heat. Electrical treatment he considered to be without value.) (3) The stage of irrecoverable paralysis. (Here treatment consisted of correct splintage, tendon transplantation, and arthrodeses.) On the whole he had found tendon transplantation disappointing, but had been impressed by the favourable results of arthrodeses, especially of the ankle-joint. Before the age of 14 he considered Whitman's astragalectomy serviceable, but after that age he preferred Naughton Dunn's subastragaloid arthrodesis. Dr. RUPERT COLLINS (Cheltenham) dealt with the course to be adopted in the case of an outbreak of poliomyelitis in a public school. In his opinion the school should be run on open-air lines, but he was doubtful of the wisdom of using chemical gargles, owing to the danger of damaging the nasal mucous membrane—particularly its ciliated epithelium—and thus increasing the danger of infection. Dr. MAUD FORRESTER-BROWN and Dr. R. G. GORDON (Bath) showed an interesting cinematograph film of the surgical treatment of poliomyelitis. Dr. JEAN MACNAMARA (Australia) emphasized the danger of applying facts determined in experimental poliomyelitis in monkeys to the natural disease in man. Fairbrother and Hurst's work was done with a virus adapted to monkeys, but up to the present no similar experiments had been reported in which a virus freshly obtained from a human source had been used. Had this been done the argument by analogy from monkey to man was open to question, as was illustrated by the case of yellow fever virus, which in man and most animals was viscerotropic, but in the white mouse intensely neurotropic. The speaker stressed the marked clinical differences between the preparalytic stage of poliomyelitis in children and in monkeys, the latter showing little febrile disturbance, marked nervous signs, and never the " spinal sign " so constantly seen in children. She regarded the virus of poliomyelitis as essentially possessing both viscerotropic and neurotropic elements. Serum therapy was still handicapped by the impossibility of accurate standardization of the serum. Dr. MacNamara pointed out that the results obtained in the New York epidemic of 1931 were open to criticism, and that it was freely admitted that the more severe cases received serum, the less severe being used as controls. The difficulty of proving the usefulness of a therapeutic agent by statistics was evident, but many clinicians of experience were impressed by its value. Mr. WHITCHURCH HOWELL referred to the rapidity with which the pain and pyrexia of the initial phase subsided on complete rest, and referred to cases he had observed in which a varicelliform rash over the dermatomes corresponding to the muscles chiefly affected had occurred. He personally had been impressed by the clinical results of serum therapy. Dr. WICHT (S. Africa) referred to the case of encephalitis in children, which showed none of the changes in the spinal fluid characteristic of poliomyelitis, and made a plea for the more accurate classification of encephalitides in early life. Dr. GORDON HOLMES remarked that the problem of serum therapy was essentially a practical and not a theoretical one, and that the bulk of the evidence available was adverse to the view that it had any action in preserving life or diminishing the incidence of paralysis.

We have received from the Department of Scientific and Industrial Research the *Index to the Literature of Food Investigation* (vol. iv, No. 2). This contains a list of useful publications on the progress in the preservation and transport of food. In addition to the title in each case, a short note is usually appended giving an indication of the subject-matter. The volume is arranged in fifteen sections, dealing respectively with such topics as meat, fish, eggs, dairy produce ; theory of canning ; freezing and chilling ; bacteriology ; mycology ; and engineering. The *Index* is published by H.M. Stationery Office (price 2s. 6d.).

Ireland

Vital Statistics for 1932

The yearly return of marriages, births, and deaths in the Irish Free State has recently been issued. It is stated that the rate in 1932 per 1,000 of the population represented by the number of marriages (13,085) registered in Saorstat Eireann was 4.4, the average being 4.7 for the ten years 1922–31. The birth rate during the year, based on 56,167 births, was 18.9 per 1,000 of the estimated population, as against 19.3 per 1,000 for 1931 and an average of 20.2 per 1,000 for the ten years 1922–31. The birth rate for the city of Dublin was 25.3 per 1,000; for the borough of Dun Laoghaire, 16.7; for the county borough of Cork, 21.4; for Limerick, 25.8; and for Waterford, 26.1. For Northern Ireland the birth rate was 20.0; for England and Wales, 15.3; and for Scotland, 18.6. The rate for Belfast was 21.5; for Londonderry, 26.1; for London, 14.3; for Glasgow, 20.6; and for Edinburgh, 15.5. The rate in respect of deaths registered in Saorstat Eireann, numbering 42,957, was 14.4 per 1,000, as compared with 14.5 in 1931 and an average also of 14.5 for the ten years 1922–31. The death rate for the city of Dublin was 15.7 per 1,000; for the borough of Dun Laoghaire, 14.3; for Cork, 15.8; for Limerick, 15.7; and for Waterford, 18.3. The corresponding death rate for Northern Ireland was 14.2; for England and Wales, 12.0; and for Scotland, 13.5. For Belfast the death rate was 14.0; for Londonderry, 14.4; for London, 12.3; for Glasgow, 14.5; and for Edinburgh, 13.5.

Dublin Hostel for the Blind

The National Council for the Welfare of the Blind, at its recent meeting in Dublin, was able to report considerable progress and development during the year ended March 31st, 1933, especially in its home-visiting section. Routine visits to blind people during the year totalled 541, while the number of persons seen at the office by the home visitor was eighty-four. Visits on behalf of the blind numbered 148, and letters and written lessons ninety. Braille lessons were given to eleven blind persons, and two country cases received elementary lessons. Assistance was given by way of information, literature, etc., to seven readers who already knew Braille, and Moon lessons were given to two elderly blind persons. Four homeworkers have produced saleable articles. Numerous applicants for the old age pension, under the new legislation which provides that blind persons shall receive the old age pension at the age of 30 instead of 50, have received advice and assistance, and in five instances special relief was granted pending payment of the State pensions. Special relief has been given on eight other occasions on account of illness and distress, and three weeks' convalescent treatment at Stillorgan Home has been provided for an elderly blind man suffering from arthritis. Dr. T. G. Moorhead, who was present at the meeting, said that the council was worthy of the support of all citizens, and that last year's work showed amazing progress. Miss Armitage, the president, who had called the council into being, was doing wonderful work for the blind. The council was not created to give charity to the blind, or to take the place of the State or local councils in the payment of maintenance money. Its object was educational, instructional, and social. The practice of reducing pensions or local allowances to blind persons who earned more than 6s. a week deterred them from earning anything over that amount, and should be discontinued. The opening of the Athlone broadcasting station was a tragedy for the blind in Dublin who had crystal sets. He was glad, however, that there was a promise that the Dublin station would be reopened, and he wanted the authorities to know that there was a very definite demand for this reopening. Dr. F. Laverty said that, although much money was being spent in the Free State in pensions for the blind, they were very far behind in preventive measures. The school medical service was a step in the right direction, and an attempt was being made in Dublin to set up special classes for short-sighted children; much credit was due to the city school medical officers for the efforts in this direction. He regretted the prevalence in Dublin of trachoma, which he might describe as leprosy of the eye, and expressed the hope that there would be adequate efforts to deal with this condition.

England and Wales

The Medical Charitable Society for the West Riding of the County of York

The one hundred and fifth annual meeting of this society took place at Doncaster under the chairmanship of Dr. T. A. Glover of that town. The report which was presented gives clear evidence of the increasing scope and utility of the work which is being carried on. At the end of the report a table shows that the membership has gone up from 862 in 1921 to 1,182 for the year now current. Those who are familiar with the aims of the society, however, are surprised, not by the magnitude of this increase in the figures, but by the fact that the membership is not much greater than it is. The work is carried on in nineteen districts, to each of which one or two stewards are attached. It is the duty of these to make the activities of the society known to all suitable newcomers to the district concerned, and to collect the subscriptions of those who do not pay by bankers' order. Their most important duty is to keep in touch with the recipients and to advise the members at the annual meeting as to the claims of any new applicants and as to any change in the circumstances of those who are already on the list of the beneficiaries. This year there were forty-five applications for grants, and all these were met, the total amount voted being £2,092. The annual subscription is one guinea. During the existence of the society its funds have been enriched by some £7,000 in legacies and donations, and there have always been about a dozen friends of the society who, though not members of the medical profession, have been annual subscribers of one guinea. It is a tribute to the discretion with which the finances of the society have been managed that no less a sum than £89,174 has been given away in grants by the end of the last financial year, and that the society possesses securities for which it has expended the sum of £43,963. One of the most useful of its activities is that which concerns itself with the education of the children of necessitous members, or of deceased members who have not left adequate provision for this purpose. The influence and the direct voting power of the society and of its members have, in the past, been used to further the candidature of suitable lads for foundation scholarships at Epsom College. The society learned with approval of the change in the method of electing foundation scholars which has recently been made, and last year, as a direct consequence of this, a note to the following effect was added to the rule dealing with the education of those who seem suitable lads to help:

"This clause shall be regarded as entitling the society, at its annual meeting, to make a grant to Epsom College for

the purpose of contributing to the establishment of a scholarship or scholarships at the College, which would be open to the children of medical practitioners who are in straitened circumstances, or who have died without leaving sufficient money to enable their children to be adequately educated, provided that notice of a motion to such effect is printed in the circular calling the annual meeting, with a specification of the amount of the grant which it is proposed to make."

Under this addition to the rule, two grants of £50 have already been made to the College. It is the hope of those who are interested in the work of the society, and who are also admirers of the great work which is being done by Epsom College, that, year by year, a grant of this or of a greater amount may be made to its finances. The society has been gratified by a request from Epsom College that it should nominate one of its number to act on the special committee whose duty it is to advise as to the election of foundation scholars, and the choice has fallen on Professor M. J. Stewart of Leeds, who is the local representative of the College in the West Riding. Particulars of the work of the society may be obtained from Dr. Wardrop Griffith of Leeds.

Royal Victoria Infirmary, Newcastle

During 1932 the number of beds available in the Royal Victoria Infirmary was 556; with the thirty beds in the Innes Hopkins Memorial Home at Ryton-on-Tyne, the Infirmary had the command of a total of 586 until October, when there was an addition of five beds to the Memorial Home. The daily number of beds occupied on an average was 544, representing 92.6 per cent. of the total. This percentage was lower than in 1931, and the drop is attributed to the committee of management's scheme to reduce the numbers, with a view to bringing the work of the institution to more manageable proportions. It is remarked in the annual report that for many years a state of overcrowding has existed, which has been detrimental to the interests of the patients and to the smooth working of the hospital. It is added that there can be no doubt that since the number of beds occupied was reduced there has been an increase in the patients' comfort, an improvement in the nursing facilities, and a more complete scientific investigation of cases. The reduction in beds was to some extent facilitated by the introduction in 1931 of the pay-bed section for patients able to contribute small sums of money; they had previously had to be treated in the main wards. The aggregate number of out-patient attendances in 1932 was 350,445, a decrease on the previous year of 22,727. This was largely due to limitation exercised with regard to cases of a trivial nature, many of which had had provision already made for them under the Health Insurance or Local Government Acts, or could have been adequately dealt with by general practitioners. The number of operations performed during 1932 was 16,710, a decrease of 614 as compared with the previous year. The total number of motor traffic accidents treated was 1,104; of these patients 420 were admitted to the wards, involving an average daily occupation of eighteen beds. The maintenance cost of these cases, excluding the cost of out-patient treatment, was £2,110. Under the provisions of the Road Traffic Act of 1930 (hospital section) £350 was recovered from insurance companies, an increase of £205 over the previous year. Since many of the accidents were not of the "third party" type no claim could be made on the insurance companies. Appeals were sent out, however, to those patients who appeared to be in a position to pay something towards the cost of their treatment, and from this source £107 was obtained. A new orthopaedic building is to be opened during the current year. The new out-patient mental clinic had had 386 patients up to the end of 1932. In spite of the acute financial strain which continued throughout the year under review, the voluntarily subscribed income reached the figure of £60,627, which is only £4,507 less than in the previous year. Expenditure exceeded income by £3,142.

The Cancer Campaign in Yorkshire

The seventh annual report of the executive committee of the Yorkshire Council of the British Empire Cancer Campaign covers the twelve months ending March 31st, 1933. Reference is made to the great value of the Algernon Firth Research Institute, a description of which building was published in the *Journal* of June 10th (p. 1012). The total expenditure for the year under review was £11,817, which exceeded that in the previous year by £400, and was about the same as that two years ago. Since its inauguration in 1926 the council has spent more than £86,000, and still has available £71,000, but it is pointed out that this sum will not provide for more than seven years, and it is hoped that there will be considerable additions to the funds in the meantime from new donations. The report contains the usual accounts of the experimental work in progress in the Universities of Leeds and Sheffield and of various investigations, aided by smaller special grants. At Leeds, to which a grant of £6,698 was made for various purposes, Professor R. D. Passey and Mr. A. Leese have been continuing the study of the products of cell injury and the processes of repair after such injury. Young's intrapleural route has been employed with a view to testing the presence of growth-promoting substances. It was found that any healthy sterile normal tissue so far tested, when placed in the pleural sac, will give rise to a marked hyperplastic reaction on the part of the cells of the serosa and of the cells of the marginal alveoli. This reaction always takes place in the immediate neighbourhood of the implanted tissue, in response, it is suggested, to some chemical agent, and not merely to the mechanical presence of a sterile foreign body. This was shown by the complete inability of an almost chemically inert body, such as a smooth piece of glass, to elicit the same response. Moreover, the relation appears to be quantitative, since it increases proportionately to the amount of tissue placed in the pleural sac. To a milder degree the same reaction on the part of the cells of the serosa and marginal alveoli was provoked by simple aseptic injury of the chest wall, involving the parietal pleura and the overlying muscles. The tentative suggestion is advanced that on the death or injury of a group of cells there is liberated a substance capable of inducing hyperplasia, provided that its concentration is adequate. Experimental evidence of this has yet to be obtained. Dr. J. W. Orr has investigated the effect of restricting the blood supply to an area which was being subjected to repeated tarring. Early experiments supported the view that such a modification of the local conditions by the vaso-constrictor ephedrine sulphate resulted in a more rapid induction of tumours. Another line of work which is being pursued is the effect on the stomach of heated foods. At Sheffield, to which a grant of just over £2,000 was made, attention has been directed to the power of fresh ox liver added to the diet to accelerate tumour development in mice treated with carcinogenic tar. The experiments seemed to indicate that the tumour-stimulating substance was not very stable, and was destroyed, possibly by the action of enzymes, when the liver was kept at normal temperatures for a day or two. It did not disappear when low temperatures were employed. A series of post-graduate lectures was given in Bradford during the winter, and single lectures on cancer topics in Hull, Doncaster, Leeds, and Rotherham. Educational leaflets have been distributed through Insurance Committees in the county.

CORRESPONDENCE

Paying Patients in Voluntary Hospitals

SIR,—The honorary secretaries of the King Edward's Hospital Fund are very persistent in their endeavour to contradict certain statements made in a communication under the above heading in the *Journal* of September 15th, 1928, and now repeated in your issue of July 8th this year. No contradiction was issued in 1928.

In their communication published in your issue of July 15th they quote as an "actual conclusion" of the Pay Beds Committee of their Fund something which never appeared in any one of the fifteen conclusions of the published report of that body. That "quotation" must therefore be taken as their own opinion and interpretation. In itself it was quite irrelevant to my summary, which they criticized.

Now, in your issue of July 29th, they name what they term two "substantial differences" as between my summaries of the committee's conclusions (appearing on pages 34–36 of that report) and the conclusions themselves.

The first they state to be that I use the term "moderate means" instead of "small means" when referring to a group of patients whose treatment at voluntary hospitals the committee in its conclusions said should be similar to that given to those known as the "sick poor." The honorary secretaries state: "The paragraph which he quotes was the conclusion of an argument that the principle of providing accommodation at a cost to voluntary funds should *not* apply to those of 'moderate means' generally." My quotation was a conclusion of the Pay Beds Committee given in full, not a paragraph from somewhere else. The statement the honorary secretaries now make does not appear in any one of the fifteen conclusions of that committee. Here again one must suppose it is the opinion and interpretation of the honorary secretaries themselves. The other "substantial difference," as they term it, is that, whereas I summarize conclusion No. 13 of that report by stating "the committees of management should lay down certain rules or limitations as to the medical practitioners who should be allowed to attend these patients," the actual conclusion of the committee was "that each hospital should decide for itself whether or not it should lay down any limitations at all." It requires a good deal of dialectic skill to appreciate the difference between these two statements, for even if there are to be no limitations there certainly must be rules of some kind in every case.

The summaries of the Pay Beds Committee's conclusions which I ventured to make four years ago, and to repeat now, are absolutely correct. If the honorary secretaries of the Fund think otherwise and desire "to correct erroneous impressions," then it is up to them to produce evidence which is relevant and accurate. The thesis I have ventured to emphasize again is your statement (*British Medical Journal*, 1928, ii, 317) that if the proposals made in the Pay Beds Report are to be carried into effect—as it would seem to be the intention of voluntary hospitals just now—"the ranks of the younger consultants will be sadly thinned." This situation becomes more grave when one remembers that that committee, in its conclusion No. 14, expressed an opinion that "pay-bed accommodation for the well-to-do might well be provided on a limited scale by voluntary hospitals"; and in its conclusion No. 15 advocated "preparing and publishing year by year for *the information of the public* a list of pay-beds at the London voluntary hospitals, with rates of charge and other particulars." And these are hospitals almost all of which are entirely manned by a restricted visiting medical staff! That is, a few hundred medical practitioners to be assisted, by advertisement and otherwise, to absorb the greater part of the more interesting and remunerative medical experience, amongst the middle and upper classes, of over eight thousand of their colleagues in Greater London!—I am, etc.,

Hove, July 29th. E. ROWLAND FOTHERGILL.

Treatment of Rodent Ulcer

SIR,—We have read the instructive paper of Dr. Finzi in the *Journal* of July 22nd (p. 137) with great interest, but feel that he dismisses the surgical treatment of rodent ulcer rather summarily. At the Birmingham and Midland Skin Hospital about fifty new cases of rodent ulcer are seen by us annually, and in many of these we have obtained very satisfactory results by excision or diathermy. A good percentage of these rodent ulcers have a diameter of about half an inch, and these, we think, are particularly amenable to surgery.

We cannot altogether agree that the cosmetic results after surgical procedures do not compare with those following radium, though we think this of less importance than the certainty of cure and the finality of the treatment. A proportion of our cases have been treated with unscreened radium and gamma-ray therapy, and we consider results with the latter method better than those obtained with unscreened plates. We can support Dr. Brain's statement that many excellent cosmetic results are seen after treatment with unscreened plates, though gamma radiation may be the method of choice. Drs. Roy Ward, Durden Smith, and Brain do not refer to the well-known fact that rodent ulcers affecting cartilage will not heal under the application of unscreened radium—a fact difficult to explain.

Perhaps the matter may be best expressed by saying that the patient who can be trusted to attend should be treated by radium, but the one who cannot should have an immediate "once and for all treatment"—surgery or diathermy. By this procedure it may be possible to reduce the number of those terrible cases with involvement of the eye, dura mater, etc., which are the result of procrastination.—We are, etc.,

HUGH DONOVAN.
E. BAYLIS ASH.

Birmingham, Aug. 1st.

Persistent Occipito-Posterior Cases

SIR,—The interesting and instructive letter of Dr. C. L. Somerville of the Leicester Maternity Hospital, on the use of Kielland's forceps in persistent occipito-posterior cases (*Journal*, May 13th, p. 846), is worthy of careful consideration by general practitioners.

Several years ago, in introducing the discussion on a paper read by Professor Windeyer of Sydney University, before the Victorian Branch of the British Medical Association, on some common obstetric difficulties, I referred to the remarkable differences in the treatment of persistent occipito-posterior cases advocated in the medical schools of various parts of the world, and incidentally mentioned that one method of dealing with these cases was rotation by Kielland's forceps. This remark met with some adverse criticism by one or two subsequent speakers, who, however, had had no personal experience with this instrument, in spite of the fact that it is strongly recommended in such cases by several leading Continental authorities, some of whom go so far as to say that it is the only forceps the use of which should be taught to students.

At a subsequent meeting of the obstetric section of our Branch, during a discussion on Kielland's forceps, one of the obstetric surgeons of the Women's Hospital, Melbourne, stated that he had occasionally observed bruising

and other injuries of the foetal head after the use of this instrument. I thereupon pointed out what in my opinion was a slight defect in the construction of these otherwise admirable forceps. If this instrument, when locked in the ordinary way, is grasped by the handles, it will be seen that the blades come together unduly, so that the normal diameter between them at their widest part, which should be three inches, is considerably diminished, thus tending to compress the child's head unnecessarily. To obviate this defect, shortly after purchasing the instrument, I had a small metal wedge welded to the lower end of each blade at its junction with the handle. This prevents any undue compression of the foetal head, while at the same time the thickness of the wedge is not such as to interfere with the up-and-down sliding movement of one handle on the other, which Dr. Kielland considers an essential feature of his instrument.

I may add that Kielland's forceps may be used exactly in the same way as the ordinary forceps, are easy to apply, are, owing to their construction, really axis tractors, and are therefore the only ones that need be carried in the obstetric bag.—I am, etc.,

FRANK A. NYULASY, M.D.,
Formerly Honorary Obstetric Surgeon, Women's Hospital, Melbourne.

June 20th.

Prophylaxis of Malaria

SIR,—I am not quite clear as to what point Dr. Withers Green wishes to make in his letter in your issue of July 29th, regarding prophylactic quinine. He states that on arrival in Malaya, and presumably following abstention from quinine, he experienced an attack of malaria, but that following a full course of quinine he had no further attack. The first part of the statement is no argument against taking prophylactic quinine, but rather from my point of view an argument for it. The freedom from malaria after this one attack, and in spite of abstention from quinine, was fortunate for Dr. Withers Green, but unfortunately such an experience is by no means the rule. (It is true that after one or many attacks of malaria an immunity seems often to develop in many cases, but even when it does develop it is generally after several attacks, any one of which may be fraught with serious consequences.)

Dr. Withers Green then goes on to make the well-known statement that prophylactic quinine tends only to mask the attack and thus to delay diagnosis and treatment. But surely the point of all the previous letters on this subject, including my own, was that if this were the case the malarial attack would develop when the prophylactic quinine was discontinued, whereas the experience of your correspondents is that this simply does not happen. The individual who takes prophylactic quinine regularly is probably frequently infected with the malarial parasite, but he does *not* develop malaria.—I am, etc.,

March, Cambs, July 31st. THOS. C. LONIE.

Snake Venoms

SIR,—At the discussion at the meeting of the Royal Society of Tropical Medicine and Hygiene held on May 11th, 1933, and reported in the *Journal* of June 10th (p. 1006), Dr. C. H. Kellaway, in dealing with the subject of Australian snake venom, said that the death from the venom of the Colubridae was due to paralysis of respiration, and that the action was peripheral and not central. Sir Leonard Rogers had challenged this view on the strength, obviously, of his Indian experience, when the speaker replied that the cobra venom was a cardiac poison, and where many lethal doses were given the animal died of heart failure before curarization had time to develop.

We have had opportunity to test the action of the venom of the Indian cobra, and could say without fear that the death is, as pointed out by Sir Leonard Rogers, definitely due to central and not peripheral respiratory paralysis. The main action of the venom on the animal, in lethal and sublethal doses, is on the respiratory centre, the effect being one of stimulation and final paralysis. The investigation also suggested the possibility of the central vasomotor effect, and in sublethal doses there was invariably a fairly sustained rise in blood pressure. In India the indigenous medical men are said to use the venom of the cobra as a substitute for strychnine, to improve circulation in cases of failure. There seems to be pharmacological support for this use. The investigation further showed that the venom had no effect on the motor end-plates in the diaphragm or other respiratory muscles. The viperine venom, as tested with that of the Russel's viper, showed death by peripheral circulatory failure. The haemolytic and curare-like actions were inconsiderable.

Some of the current views on the venoms of poisonous snakes need revision. Further information on this subject could be had from the *Indian Journal of Medical Research*, vol. xviii, April, 1931, and vol. xix, April, 1932.—I am, etc.,

V. ISWARIAH, M.B.,
Vizagapatam, S. India, July 8th. M.R.C.P.

Treatment of Leg Fractures

SIR,—I read with interest Mr. Wardle's recent article on fractures of both bones of the leg, and the protests it has raised from Mr. R. Broomhead and Mr. N. Roberts (*Journal*, August 5th, p. 263). Particularly interesting was the latter's accusation of " Mr. Wardle's exaggerated criticisms "—this at the end of a short note in which we are told that " sepsis . . . is almost unknown " and " skeletal traction properly applied cannot possibly cause ' an enormous amount of damage.' " Lastly—weakest of all arguments—comes the statement that Mr. Wardle's impressions are contrary to all accepted beliefs, and therefore, we assume, must be wrong. I, personally, must endorse Mr. Wardle's impression regarding union of fractures, and I have not infrequently found that the fracture with a perfect *x*-ray picture takes longer to unite than that giving only moderate radiological results. Mr. Broomhead's whole-hearted condemnation of what is called the Winnett Orr treatment of compound fractures surprised me, and his ghastly description of the results has certainly not been my experience.

To orthopaedic surgeons treating fractures every day any method which is reasonably intelligent will give a good result in the hands of the surgeon accustomed to use that method ; but the value of Mr. Wardle's article was the reminder to surgeons to whom a fracture of the lower leg is only a weekly or monthly occurrence that anatomical reposition is not absolutely necessary provided that the alignment and length is satisfactory. While everyone has his fads, and one orthopaedic surgeon will advise one method and a second will favour another technique equally satisfactory, surely the method which is simplest and which is attended by complications resulting from the fracture and not from the treatment is the method for general adoption and for the teaching of students. If a fracture can be reduced by the hands alone, and retained in position by plaster—as undoubtedly it can be, with care and attention to detail—the addition of pins and appliances for skeletal traction only complicates treatment, and necessitates extra equipment in the country practitioner's emergency outfit.—I am, etc.,

Liverpool, Aug. 5th. W. J. EASTWOOD.

Anaesthesia in Labour

SIR,—I have read with great interest Mr. Arthur Rees's paper on the use of chloroform capsules in labour in the *Journal* of August 5th (p. 241). It is a paper of great importance, as the time has now come when women have as much right to expect relief from the pains of labour as from the pains of dental extractions. I feel, however, that there is a greater future for gas and oxygen anaesthesia in labour than for chloroform. Mr. Rees says, for example, "I am convinced that these capsules [of chloroform] can be a very real danger." In the administration of gas and oxygen there is no danger at all, so far as I know. With proper technique, too, there is absolute relief from pain in all cases.

The objections raised against gas and oxygen are: (1) the expense, (2) the heavy apparatus required, and (3) the absence of skilled administrators. A practical portable apparatus was made for me for £10, including accessories. The British Oxygen Co. have an excellent hire service for cylinders. Each confinement costs about 5s. in gas and oxygen. There is still room for improved apparatus, but the first two objections do not hold. The method of administration is easy to learn, and with a little practice success is assured.

I have used gas and oxygen in my own practice for some little time, but, having only done some 100 cases, am not in a position to say whether this method is suitable for use by midwives. In any case an assistant would be required. Here is a fruitful field for investigators, and as this subject is of so great an importance to women some of our women practitioners might well carry out and publish a series of investigations. The use of gas and oxygen in labour has been neglected in this country. In how many maternity hospitals, for example, is it used at all? Perhaps our Ministry of Health could lead the way.—I am, etc.,

New Barnet, August 6th. JOHN ELAM.

Psychology and the Curriculum

SIR,—Dr. H. Godwin Baynes's letter in the *Journal* of August 5th (p. 267) is a timely reminder on the subject of how and when psychology shall be taught to the medical student. Nearly everyone, I think, agrees that the right sort of psychology can be, and is, most helpful in general practice, the first difficulty being *when* it shall be inculcated, and the second, *what kind*. That the curriculum is already overburdened I also think all will agree, and therefore it is practically impossible to squeeze in another subject.

My belief is that the wisest course would be to reduce the student's curriculum, but to insist on a six months' post-graduate course before the technically qualified man is allowed to practise. In this course the incubus of prospective examinations will have been lifted, and among other practical demonstrations given there should be lectures on psychology and also on general practice. No further examinations would be required, but the qualified man would have to produce evidence of having attended the prescribed number of lectures and demonstrations before he could be registered as one who had the legal right to practise in the national interest.

There is no doubt that psychology, if viewed through Freudian spectacles, is a complicated and, to my mind, risky subject to introduce; but in the understanding of the simple, common-sense, individual psychology of Adler and his followers there appears to me to be a brighter prospect for the human race and enormous help to the medical man who wishes to understand his patients.—I am, etc.,

Folkestone, Aug. 6th. G. FRANCIS SMITH.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Applications for the Gwynaeth Pretty Studentship, the holder of which shall devote himself to original research in the aetiology, pathology, and treatment of disease, with particular but not exclusive reference to those diseases which cripple or disable in childhood or early life, are invited, and should be sent, accompanied by copies of papers containing published work, and by testimonials and references, before November 1st, 1933, to Professor H. R. Dean, Department of Pathology, to whom also applications for further information may be addressed. The studentship is of the annual value of £200, and is tenable for three years. The place and nature of the studies of the student are subject to the approval of the professor of pathology, provided that the student shall be bound to pursue his studies within the University unless the managers dispense with this requirement for special reasons.

Applications for the Nita King Scholarship, the holder of which shall devote himself to original research in the aetiology, pathology, and prevention of fevers, are invited, and should be sent, accompanied by copies of papers containing published work, and by testimonials and references, before October 1st, 1933, to Professor H. R. Dean, Department of Pathology, to whom also applications for further information may be addressed. The scholarship is of the annual value of £50.

The Senate has appointed Dr. A. E. Barclay to represent the University at the fourth International Congress of Radiology, to be held in Zürich from July 24th to 31st, 1934.

UNIVERSITY OF LONDON

The following degrees were awarded by the Senate on July 19th:

PH.D. (BACTERIOLOGY).—M. A. H. Gohar (Lister Institute of Preventive Medicine).

PH.D. (PATHOLOGY).—P. R. Rao (St. Bartholomew's Hospital Medical College).

UNIVERSITY OF SHEFFIELD

Lewis B. Winter, M.A., M.D.Cantab., has been appointed lecturer in physiology.

QUEEN'S UNIVERSITY, BELFAST

The Senate has appointed C. J. A. Woodside, M.B., F.R.C.S.I., part-time lecturer in anatomy, and N. B. Graham, M.B., part-time lecturer in psychological medicine.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At the quarterly comitia of the Royal College of Physicians of London, held on July 27th, the President, Lord Dawson of Penn, in the chair, the following were elected officers for the ensuing collegiate year: *Censors*, Sir Charlton Briscoe, Bt., Arthur J. Hall, Lord Horder of Ashford, Charles Bolton; *Treasurer*, Sidney P. Phillips; *Registrar*, Sir Raymond Crawfurd; *Harveian Librarian*, Arnold Chaplin; *Assistant Registrar*, C. E. Newman.

Awards

The Baly Medal, awarded every alternate year to the person who shall be deemed to have most distinguished himself in the science of physiology during the two years immediately preceding the award, was awarded to Dr. Robert Robison of the Lister Institute for his distinguished work on the esters of phosphoric acid and the enzyme phosphatase, and the part they play in bone metabolism.

The Moxon Gold Medal, awarded every third year to the person who should be deemed to have most distinguished himself by observation and research in clinical medicine, was awarded to Professor G. R. Minot of Boston, Massachusetts, for his valuable work on diseases of the blood.

The Weber-Parkes Prize and Medal for the best work already done in connexion with the aetiology, prevention, pathology, or treatment of tuberculosis in this country or abroad was awarded to Sir John McFadyean.

Appointments

The following appointments were announced: Dr. James Collier as Harveian Orator, 1934 (the forthcoming Harveian Oration in October next will be delivered by Sir Thomas Lewis); Dr. J. H. Sheldon as Bradshaw Lecturer, 1934; Dr. H. L. Tidy as Lumleian Lecturer, 1934; Dr. E. C. Dodds as Goulstonian Lecturer, 1934; Dr. C. H. Andrewes as

Oliver-Sharpey Lecturer, 1934; Sir Humphry Rolleston, Bt., as FitzPatrick Lecturer, 1934; and Dr. E. I. Spriggs as Croonian Lecturer, 1935.

Sir George Newman and Dr. J. W. McNee were re-elected representatives of the College on the executive committee of the Imperial Cancer Research Fund.

The Leverhulme Scholarships held by Dr. J. F. Brock and Dr. S. J. Hartfall were continued for another year, and the Murchison Scholarship was awarded (this year by the University of Edinburgh) to D. F. M. Batty and Alexander Brown.

Sir William Willcox was elected representative of the College on the Advisory Committee to be termed "The Poisons Board" under the Pharmacy and Poisons Act, 1933.

Dr. R. D. Gillespie was appointed to represent the College at the third biennial conference on mental health at the National Council of Mental Hygiene in November.

Membership

The following candidates, having satisfied the Censors' Board, were admitted members of the College:

Patrick Clarence Anderson, M.B.New Zealand, Baij Nath Bhandari, M.D.Durh., L.R.C.P., Anthony Curtis Byles, M.B.Lond., L.R.C.P., Alan Barham Carter, M.B.Camb., L.R.C.P., Bankat Chandra, M.B.Bombay, L.R.C.P., Idris Davies, M.D.Lond., L.R.C.P., Pierre Marcel Deville, L.R.C.P., John Harold Follows, M.D.Liverp., George Giglioli, M.D.Pisa, Richard Withers Gilmour, M.B.Durh., L.R.C.P., Myer Jacob Gordon, M.D.Belfast, Edward Emile Delisle Gray, M.D.Lond., L.R.C.P., William Pickup Greenwood, M.D.Lond., L.R.C.P., Eric Hamilton Hudson, M.B.Camb., L.R.C.P., Alexander Henderson Imrie, M.B.Glas., Beatrice Mary Joly, M.B.Lond., Emyr Wyn Jones, M.D.Liverp., Ronald Arthur Jones, M.B.Camb., L.R.C.P., Charles Herbert King, M.B.New Zealand, William Lennon, M.D.Belfast, John Charles Joseph McEntee, M.D.Dublin, John Angus McLean, M.D.Melb., Sher Mohomed Mallick, M.B.Punjab, L.R.C.P., Achanvittil Krishna Menon, M.B.Madras, Arthur William Morrow, M.B.Sydney, Robert Pierret, M.D.Lyons, Russell John Reynolds, C.B.E., M.B.Lond., L.R.C.P., Hyman Solomon Roseman, M.D.Dublin, Norman Lloyd Rusby, M.B.Oxf., L.R.C.P., William Walters Sargant, M.B.Camb., L.R.C.P., Ramchandra Vishwanath Sāthē, M.D.Bombay, James Tate, M.B.Belfast, John Wakefield de Witt Gray Thornton, M.B.Oxf., L.R.C.P., Ronald Ernest Tunbridge, M.B.Leeds, Kailash Nath Waghray, M.B.Lucknow, Leigh Thornton Wedlick, M.B.Melb., Paul Hamilton Wood, M.B.Melb.

Licences and Diplomas

Licences to practise were conferred upon the following 143 candidates (including twenty women) who have passed the final examination of the Conjoint Board and have complied with the by-laws of the College:

R. M. H. Anning, Mary C. S. Aquino, T. P. Ayre, F. H. Barber, G. A. Barker, J. Bayley, R. B. Bell, L. J. Beynon, R. W. Billington, M. J. Boering, Beryl Bolton, A. R. Boney, F. M. Braithwaite, P. S. Buckley, E. G. L. Bywaters, W. R. Cambridge, J. P. Child, G. R. Clarke, R. D. Clay, L. Z. Cosin, S. W. Croome, P. N. Cutner, Hilda M. S. Davidson, J. H. Dixon, H. E. Dunstan, O. G. Edholm, E. P. Edmonds, L. R. L. Edwards, P. R. Evans, S. M. Evans, E. C. Fernandes, T. Fichardt, C. Fletcher, J. M. Flower, T. Foulds, N. W. Gardener, R. G. B. Gilbert, H. Goldfarb, M. S. Good, W. E. F. Gough, J. Grocott, S. J. Hadfield, J. G. Hailwood, R. V. Harris, V. E. L. Hart, K. J. Harvey, J. D. Hay, Dorothy J. Healey, A. A. Heathcote, A. Hemming, S. Henderson, C. V. A. Henriques, E. C. Herten-Greaven, F. G. Hinks, R. H. K. Hope, Doris I. Howell, E. T. Hudson, J. Hughes, W. R. Hunter, D. A. J. Hunwick, H. G. Hutton, H. V. D'A. Iles, Margaret H. James, H. G. John, Elsie E. Johnson, W. A. Johnson, G. F. Jones, O. G. Jones, V. D. Jones, C. W. C. Karran, F. W. H. Kent, E. W. Kinsey, Madeline E. E. Knowlson, C. E. Langley, A. G. Leigh, F.-X. Letellier, R. I. Lewis, Louisa A. Loder, M. J. McCormack, D. B. McGavin, L. G. Mackenzie, J. D. P. Macpherson, J. N. Majumdar, T. O. Mason, W. H. Mason, G. J. H. Maud, J. T. Mendoza, K. S. Menon, F. C. Moll, Mildred A. Morgan, G. T. L. F. Morris, G. K. Mulki, C. R. Naidu, Saraswati D. J. Nand, Eileen A. Neilson, W. F. Nicholson, F. A. Nicolai, F. B. J. O'Dowd, W. M. Oxley, Emma D. N. Part, H. S. Pasmore, E. Pereira, R. C. Percival, R. R. Prytherch, G. Qvist, A. M. Rackow, C. Raman, Winifred H. Redmond, R. S. Richmond, G. C. D. Roberts, I. G. Robin, Marjorie C. A. Robson, Christine M. Rooke, J. A. Ross, Margaret H. Scott, T. Seager, S. K. Sen, A. L. Secchi, A. Shatz, Freni M. Shaw, T. W. Smailes, J. A. Squire, W. G. Stanford, W. P. Stevens, L. J. Stoll, J. N. Strauss, V. A. J. Swain, Mary G. Tate, D. M. E. Thomas, H. B. Thomas, R. W. H. Thomas, J. R. Vaid, J. A. Vermylen, E. O. Walker, M. L. Walt, R. A. L. Wenger, C. J. G. White, J. L. Wightman, M. R. P. Williams, V. H. Wilson, J. C. Winteler, Elma Wolmarans, R. M. Yeo.

The following diplomas were also conferred jointly with the Royal College of Surgeons of England: Public Health (15); Tropical Medicine and Hygiene (14); Ophthalmic Medicine and Surgery (15); Psychological Medicine (12); Laryngology and Otology (11); and Medical Radiology (3). To the list of successful candidates, published in the report of the meeting of the Royal College of Surgeons in our issue of July 22nd, should be added the name of Adelaide G. Gault as a recipient of the Diploma in Ophthalmic Medicine and Surgery; and the name of H. E. P. Yorks in the list of recipients of the Diploma in Medical Radiology should have been H. E. P. Yorke.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary meeting of the Council was held on August 3rd, when the President, Sir Holburt Waring, was in the chair.

The fourth Macloghlin Scholarship of £120 per annum for medical students was awarded to Frank Philip Powell of Monmouth School.

Mr. E. B. Dowsett, D.S.O., and Mr. A. T. Pitts, D.S.O., were re-elected members of the Board of Examiners in Dental Surgery. Mr. R. Davies-Colley, C.M.G., was elected an examiner in pathology.

Diplomas of Membership were granted to 167 candidates who had passed the examinations in medicine, surgery, and midwifery of the Examining Board in England, as follows:

G. E. M. Benson, C. G. Brée, N. Chakravarty, J. J. Chatterton, A. Das, Helen E. Dimsdale, R. G. Fear, E. C. Fountaine, D. L. Fromow, Pearl M. Heirshberg, C. E. W. Hoar, J. R. Hughes, B. F. Jackson, W. W. Jolly, S. H. Kessler, G. D. Lehmann, R. M. Littledale, J. A. S. Marr, T. Miles, R. Ram, M. Richmond, M. A. Rugg-Gunn, P. Simon, P. G. Stainton, C. H. Yeoh.

(The names of 143 of the successful candidates are published in the report of the meeting of the Royal College of Physicians of London in this issue.)

Obituary

SIR JOSEPH COOKE VERCO, M.D., F.R.C.S.

Honorary Consulting Physician, Adelaide Hospital

The death, at the age of 82, of Sir Joseph Verco, which was announced in our columns last week, removes one of the outstanding figures in the medical profession in Australia. Sir Joseph, who had retired from practice, was honorary lecturer in medicine at Adelaide University, and honorary consulting physician at Adelaide Hospital. Born in South Australia in 1851, he received his early education in Adelaide. Coming to London in 1870 he studied medicine at St. Bartholomew's Hospital, where he held the posts of house-physician and midwifery assistant. In 1873 he won the Wicks essay prize. Qualifying M.R.C.S. in 1874, he became F.R.C.S.Eng. in 1877; he graduated M.D.Lond. in 1876. In 1919 he was knighted for his services to medicine.

To the surprise of those in charge at St. Bartholomew's, Verco, in 1878, when he was 27 years old, decided to return to Australia, travelling out as surgeon-superintendent of an emigrant ship—the *Clyde*. For close on fifty years a leading figure in the medical profession in South Australia, his services were handsomely recognized on the occasion of the jubilee of the South Australian Branch of the British Medical Association by the President, Dr. John Corbin, who said in his address that it would be impossible to detail all Sir Joseph's varied activities in the affairs of the Branch. He was president from 1886 to 1887, and again from 1915 to 1919; he was representative for South Australia at the Portsmouth Meeting in 1923. Dean of the medical faculty, he was one of the earliest and greatest of teachers in the Adelaide Medical School, both as lecturer and honorary physician. A constant contributor to the scientific meetings and exhibitor at clinical demonstrations, the method and thoroughness of his teaching and the way in which his papers and exhibits were prepared and presented was an ideal to be aimed at by everyone. Largely responsible for the carrying out and completion of the dental school and hospital, he was the first dean of the dental faculty. President of the Royal Society of South Australia for nineteen years, his contributions to scientific knowledge and research outside medical matters were many and excellent. A leading conchologist, his collection in the National Museum is probably the best in the southern hemisphere. His own contributions to medicine are numerous and scattered throughout the medical journals of Australia. With Dr. E. C. Stirling he wrote the excellent article on hydatid

disease in Allbutt's *System of Medicine*. This not only collated the early literature, but was illuminated by the author's personal experience of cases, and at the time of publication it was recognized as a classic presentation of the subject.

A Nestor of the medical profession, Sir Joseph Verco will be missed by a wide circle of friends and old students, who looked to him for advice and wise counsel in the solution of difficulties, both personal and professional. In 1911 he married Mary I. Mills. There were no children of the marriage.

HARRY MORTIMER WHARRY, F.R.C.S.

Surgeon to Ear, Nose, and Throat Department, Bolingbroke Hospital

We regret to announce the death, at the age of 42, on August 1st, of Mr. H. Mortimer Wharry. He had been in indifferent health for some time, but he had recently returned to his duties, and his death came as a great shock to his friends and colleagues.

Mr. Wharry was the son of Surgeon-Major A. J. Wharry of the Egyptian Army, and received his education at Radley and New College, Oxford, coming to St. Bartholomew's Hospital for his clinical studies. He qualified with the conjoint diplomas in 1916, and was at once swept into war-time work, serving in France and later in Mesopotamia, returning at the end of hostilities to work for the English Fellowship of the Royal College of Surgeons, which he obtained in 1922. Mr. Wharry selected the department of oto-rhino-laryngology for his specialty, and worked as assistant in the special clinics for this subject at his own hospital and also in those at St. George's Hospital and at University College Hospital. At one time he was on the staff of the West-End Hospital for Nervous Diseases as laryngologist and otologist, and also on the staff of Mount Vernon Hospital. These positions he had resigned, and his main hospital work of recent years had been in connexion with the ear, nose, and throat department of the Bolingbroke Hospital. He was also a consulting aural surgeon to the Ministry of Pensions and to the Royal Masonic Institute for Girls. Mr. Wharry published some useful work on the subjects of lupus and on tuberculosis of the larynx in the earlier days of his career, but he found an increasing interest in the problems of deafness, to the solution of which he made some valuable contributions. He was chairman of the Medical Subcommittee of the National Institute for the Deaf, and a member of the combined research committee of the National Institute for the Deaf and the London School of Hygiene and Tropical Medicine. In association with Dr. G. P. Crowden he introduced the methods of prescribing scientific hearing aids for the deaf, and he was the inventor of the differential microphone and binaural electrical hearing apparatus. He was until recently actively engaged in a further study of some of the aspects of hearing tests.

Mr. Wharry was a man of wide interests. He was a Fellow of the Zoological Society, and he was fond of enumerating the very large number of outdoor sports and games in which he had taken part; he was an active member of the Park Lane Ice Club. He married in 1919, and leaves a widow, one son, and two daughters, with whom the greatest sympathy will be felt at such a sudden and premature bereavement.

PROFESSOR H. G. GREENISH

Professor of Pharmaceutics, University of London

The death of Professor Greenish, the dean of the Pharmaceutical Society's School of Pharmacy, marks the loss of a remarkable figure—representative of the best of pharmacy in the last forty years.

Henry George Greenish was born in 1855, and became lecturer in materia medica in the Society's school in 1890 and professor in 1893. He studied in Dorpat under Dragendorff, and in Vienna. In the following years he carried out much research and published his well-known *Text-Book of Materia Medica*, for long the standard British work. In 1917 the University of Paris conferred on him the honorary degree of Doctor of Science. He retired from his post as dean on July 31st last, and died on August 2nd. Those who did not know him sometimes expressed surprise that Greenish retained his post so long: the reason was threefold. In the first place, until three or four months before his death he remained young for his age, both in physique and in mentality, enjoying a happy disposition and an ever-present sense of humour. Secondly, he possessed in a peculiar degree the power to gain, and retain, the respect and affection of his students—to the end he was able to inspire them with the enthusiasm and the traditions which have long informed the Society's school. In the third place, he was a man of learning, erudite and distinguished, with a remarkable knowledge of pharmaceutical science.

Professor Greenish had a close connexion with three revisions of the *British Pharmacopoeia*: that of 1898, that of 1914 (of which he was one of the two editors), and that of 1932. He regarded pharmacy as an end in itself, and he attached little importance to its contact with medicine. This attitude of mind was perhaps inherited from his father and coloured by the old feeling of competition between the medical man and the pharmacist, both of whom kept open shop for the sale of medicines and poisons. He had a fear that if pharmaceutical education followed modern developments of medical science the pharmacist would become the servant of the medical man; this he was determined at all costs to avoid. If pharmacists were to occupy themselves with biochemical analysis he considered that their activities would be limited to the laboratories of institutions and hospitals, where they would work as subordinates. He regarded pharmacognosy (in the main the study of materia medica of plant origin) as the field in which pharmacists could make their proper contribution to the development of science.

Throughout his career Professor Greenish maintained a high standard of education in the Society's school, and thereby ensured that attempts were made to attain a similar standard in other schools. It is to the maintenance of this standard that pharmacists to-day owe their professional position, despite the loss of much of their professional activities. His great achievement during the last ten years of his life was to link the School of Pharmacy with London University by the establishment of the degree of Bachelor of Pharmacy.

PROFESSOR STORM VAN LEEUWEN

Director of the Therapeutic Institute of the University of Leyden

We regret to announce the death at Leyden, Holland, on July 30th, at the age of 50, of Dr. Willem Storm van Leeuwen, director of the Therapeutic Institute of the University of that town. Professor van Leeuwen had attained a considerable international reputation in many branches of medical science, and it will be remembered that it was he who was called in to investigate the mysterious deaths from the "poison-fog" which occurred in the Meuse Valley in the winter of 1930. Born at Kampen, Holland, in 1882, Storm van Leeuwen became at 21 a cavalry officer, and served for three years in the Dutch East Indies. Malaria caused his return to Holland, and it was not until he was 26 years old that he began at Utrecht his life study of medicine. As early as 1911 he was assistant to Professor Magnus, and he held this post until 1914. From 1915 to 1917 he was director of the Pharmacological Institute, Utrecht, and in 1919 obtained his professorship; a year later he succeeded van Leersum as professor at Leyden. The chief of his many

publications were on pharmacology, metabolism, and allergic diseases—especially the latter. He also wrote on physiology, diabetes, diuretics, narcotics, local anaesthesia, and the treatment of bronchial asthma.

Professor R. J. S. McDowall writes:

It must have come as a great shock to many to have learnt of the death of Storm van Leeuwen, but to those of us who knew him as a friend his death is indeed a loss. He was known to the world for his demonstration that, in Holland at least, asthma may be the result of the inhalation of moulds, which could be removed from the air by suitable purification. No one could have come into intimate contact with him without realizing that he was a man of very wide knowledge and affairs. He was as much at home in the laboratory as by the bedside, and showed an amount of appreciation and detailed power of criticism of experimental technique which was as unexpected as it is rare in one who is famed in the realm of practical therapeutics. But it was his wonderfully attractive personality which gave him so many friends. Even if he criticized—and he was fond of doing so—he did so with a sincerity which made it impossible for one to take offence; with sound advice and encouragement he was equally warm. He combined in a remarkable degree a great sense of the fitness of things with a geniality and light-heartedness which made him the joy of any party, and many will ever remember the intensely interesting and never dull evenings spent in his company and that of his ever-charming, helpful wife. He leaves to the world the memory of a great Dutchman and a great scholar; but to those whose privilege it was to know him as a friend he leaves that wonderful intangible, unforgettable "something" which tells us how fortunate we were that he passed our way.

THE LATE MR. E. COLLIER GREEN

"C. H. H." of Ambleside writes:

Collier Green was never a man to pick up friends indiscriminately, but having made his choice he was loyalty itself; perhaps it was on this account that those of us who knew him best valued his friendship and recognized his merits the more. It was my privilege to know him intimately, at work as well as at play, for over half a century. However, those who have been associated with him at the Derbyshire Royal Infirmary since I left in 1903 must bear their testimony to his work—not a difficult task, for Collier Green and the Derbyshire Royal Infirmary were one and indissoluble. It was when he got into his holiday clothes, the knickerbocker suit and that Inverness cape we all remember so well, that I got to know him best. I think his chief recreations and amusements were walking the Lake Country hills, photography, and planning hospital extensions, and he combined all three with great success. How he loved the Lakes and how well he knew the country! He seldom missed a year without a visit, and sometimes more than one: a stout stick and a camera the only visible part of his equipment—the stick sometimes left behind, the camera never. But then we all knew that as an amateur photographer he was supreme. I know that in his early days he was, with his brother, a keen Alpine man, and I have frequently seen on the screen the pictures he brought back, all his own production, from the viewfinder to the finished lantern slide, and always the joy and admiration of the local photographic society. He was such a delightful companion. I remember so well the afternoon we passed together on his last visit to us, less than a year ago. He was showing for the first time some loss of vigour and slight lameness—"Shanks's pony," that had carried him so well for many years, was beginning to strike work. However, a two-seater car served our purpose, and I had the satisfaction on our return from a drive of hearing him say to his wife, "My dear, he has shown me a bit of Westmorland I have never seen before, and I am not sure that it's not the most beautiful bit." The next day he returned home and I never saw him again.

He was a man whose deep religious conviction was a great influence on his life, of superlative honesty of purpose, wise in counsel, which he seldom volunteered unasked, ready with a definite opinion on any subject that he had studied, and prepared to back it against all opposition. Perhaps to some he might, at times, have appeared a little domineering, but this was more a mannerism than a reality, due, I used to think, to a determination to reach the high ideal at which he aimed, and his advice was seldom found to be anything but sound. Of Collier Green it may be truly said that in filling a difficult post he leaves behind many friends and not a single enemy.

Medical News

The University of London now grants a diploma in nursing. The examination for this diploma, which is open to men as well as to women, consists of two parts. Candidates may enter for each part separately or for both parts at the same time. A copy of the regulations may be obtained from Mr. John Lea, M.A., University Extension Registrar, University of London, South Kensington, S.W.7.

The Midwives' Institute hopes to be in its new house, 57, Lower Belgrave Street, at the end of September. As previously announced, it is to share with the Queen's Institute for District Nursing the magnificent premises provided by the National Birthday Trust Fund as headquarters for midwifery in London.

The Members' Congress of the Chartered Society of Massage and Medical Gymnastics will be held from September 18th to 23rd, and all lectures and demonstrations will be given at University College, Gower Street, W.C. Registered medical practitioners will be admitted free of charge to the lectures and demonstrations, for which a card of admission may be obtained from the offices of the Society, Tavistock House (North), Tavistock Square, W.C. Medical practitioners requiring vouchers for reduced railway fares should make application to the above address.

A tour limited to medical practitioners, their families, and medical students will start from Paris on September 3rd, and return thither after visiting Spa, the Ardennes, Brussels, Louvain, and Ostend. During its course there will be medical, scientific, and historical lectures and demonstrations at the various therapeutic centres; places to be visited include the Brussels Faculty of Medicine, the cancer institute at Louvain, the Borgoumont Sanatorium, and the new thermal treatment centre at Ostend. The charge is 1,100 francs. Further information may be obtained from the secretary of the Medical Belgian Tour, 38, Avenue Auber, Nice.

The German Society for the History of Medicine, Natural Science, and Technique will hold its annual meeting at Erfurt on September 9th and 10th, when a special tribute will be paid to the founder of the society, Geheimrat Sudoff, on the occasion of his eightieth birthday.

The English section of the *National Medical Journal of China* has been merged with the *China Medical Journal* since January, 1932. The Chinese section, now in its nineteenth year, is published separately every two months, with summaries in English of the original articles. From January, 1934, it will be published as a monthly journal to mark the twentieth anniversary of its foundation as the leading medical journal printed in Chinese.

The King has confirmed the appointment of Dr. Alexander H. B. Pearce, Chief Medical Officer, to be a nominated member of the Legislative Council of the Colony of Fiji. Dr. Charles Norman Griffin (Chief Medical Officer) has been appointed an official member of the Legislative Council of the Presidency of Dominica.

The following are included in the bequests under the will of Sir George Beatson, who died on February 16th: £500 to King William's College, Castletown, Isle of Man, for an annual "Beatson Prize" on any science subject; £500 to Clare College, Cambridge, for a "Beatson Prize" on any subject in medicine or surgery; and £500 to the Research Fund of the Glasgow Royal Cancer Hospital.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Intermittent Claudication

"H. V. D." writes: I should be grateful for any information as regards the beneficial results or otherwise following the injection of lacarnol and padutin in the treatment of intermittent claudication. I have a patient suffering from this condition, together with apparently an intermittent simple spasm of the urethra. Can I expect lacarnol to relieve the spasm also?

Income Tax

Share in Partnership : Cash Basis

"N. B." has acquired a one-third share in a firm assessed on the cash basis; he has not bought any book debts. How should the tax payable by "N. B." be computed, and who pays tax on the old book debts when they are received?

⁂ Partners cannot claim to be separately assessed, and the assessment must therefore be made on the full income of the practice. If the cash basis is continued, therefore, *all* the cash must come into the gross receipts, whether taken by the in-coming partner or not. Tax is payable on profits, whether received or not, and an assessment for, say, the year to April 5th, 1933, is in respect of the income of that year, and the tax charged thereon should be borne by the partners according to their respective shares for that year, though those partners may not have had the "cash receipts" on the basis of which the assessment was calculated. In our view, therefore, "N. B." should bear tax on one-third of the gross income, less the amount of his personal allowances. As a corollary it follows that a partner is not liable for tax on the amount of the cash received in payment of those past bookings which relate to a share in the profits which he has sold; otherwise tax would be paid twice on the same income.

Motor Car Depreciation and Obsolescence

"B. X." bought a new car in 1931 for £242. He sold it in October, 1932, for £140, buying a second-hand car of a different make but similar horse power and design, for £160. He has claimed to deduct £242 – £140 = £102, and the inspector of taxes is requiring further information in support of his claim.

⁂ The claim does not seem to be well founded in law. No allowance can be given for loss of capital, and any renewal claim must be restricted to the actual out-of-pocket expense—namely, £20. We advise "B. X." to amend the claim as follows:

Depreciation for 1932-3, 20 per cent. of £242 = £48, having a reduced value of £242 – £48 = £194.
Obsolescence claim, to be regarded as an *expense* of the year 1932, £194 – £140 = £54.
Depreciation claim for 1933-4, 20 per cent. of £160 = £32.

LETTERS, NOTES, ETC.

Competence in Midwifery

Dr. Albert E. Nicholls (Shrewsbury) writes: In the *Journal* of July 29th (p. 214) Dr. R. Owen Jones refers to the "ridiculously scanty training" of students and midwives, and blames the maternal mortality on this. Looking back on my own training at the London Hospital, which I take to be on a par with other great hospitals, I can only say that it was thoroughgoing. The hospitals give the student a splendid training, and after that it is "up to him." Critics are apt to forget that the student of midwifery has already a very considerable foundation of knowledge—anatomy, physiology, medicine, and surgery—upon which to build. If there is one thing a medical student is religious about it is asepsis. It is hammered into him until it becomes a fetish: this is the result of his surgical studies. The medical student has been gradually building for a few years, and the study of midwifery is another link in the chain of knowledge. If he set out *de novo* to study midwifery the course would have to be much longer. As he is applying knowledge he already possesses the course is of necessity shorter. If I produced a slogan for those who practise midwifery it would be "Don't hurry!" In the rush to save time one is apt to terminate labour. Given fair knowledge and skill—and that includes most of us—the doctor who will have the most satisfactory results will be he who absolutely refuses to hurry unnecessarily.

Pancreatitis in Mumps

Dr. C. Voigt writes from Broken Hill, N. Rhodesia: I was interested in Dr. A. H. Spicer's letter about so-called pancreatitis in mumps in the *Journal* of June 10th because I have experienced the condition myself. Restlessness, headache, nausea and vomiting, as well as pain, only when food—even fluid—entered the stomach, and hectic temperature were the symptoms, together with partial coma for forty-eight hours at the end of the first week of mumps. I had just the experience of Dr. Spicer's friend in America, and the difficulty in my case as to the true abdominal state was increased by anxiety about a scratch received just before while doing a post-mortem, and a question of cerebral malaria. One of my patients in the same epidemic had similar symptoms, but rather more abdominal pain. There was no unequivocable evidence of acute pancreatitis.

Treatment of Boils

Dr. S. P. Hastings (Auckland, New Zealand) writes: After twenty-five years' experience in the treatment of cases of furunculosis, I have come to the conclusion that the best local application is iodex. The method is simple. Cover the boil, and from 1/4 to 1/2 inch of the surrounding skin, with the ointment. Do this once or twice daily. If begun early the treatment causes the boil to disappear—it does not "come to a head." To see an angry-looking boil melt away, in almost thirty-six hours, when one begins to use this treatment, is a very pleasant surprise. With further experience one finds this is the usual happening.

Accommodation for Blind Children

During the past two years the number of sightless babies under 5 years of age has fallen by nearly 16 per cent. This diminution is largely due to the fact that the problem of blindness in infancy is now being tackled at its source. Compulsory notification of ophthalmia of the newborn is already showing good results. About one-quarter of all blind babies submitted for examination are found by the National Institute for the Blind to be "mentally retarded," and special accommodation and treatment must be provided for such cases. The present decrease in numbers will enable the Institute to deal more efficiently with this branch of its welfare work. Local authorities throughout the country have been notified that the Sunshine Home at Leamington is to be immediately evacuated by all "normal" blind babies, who will transfer to other Sunshine Homes, and that the building will be reserved exclusively for those needing the special treatment.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 36, 37, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *124*.

Observations

ON

OCCUPATIONAL DERMATITIS*

BY

W. G. HARVEY, M.D., F.R.C.P.I.

PHYSICIAN AND DERMATOLOGIST TO THE ADELAIDE HOSPITAL, DUBLIN

Dermatoses due to industrial employment were recognized early in the sixteenth century by Paracelsus and Agricola,[1] who described skin disorders occurring in metal and salt miners. Ramazzini,[2] in 1700, wrote a treatise on diseases of tradesmen, in which he described with accuracy the dermatoses of bakers, farmers, and other artisans. In 1775 Percivall Pott described chimney-sweep's cancer, and later Robert Willan described the skin affections of bakers, shoemakers, washerwomen, and metal workers. Until recently, however, the references to occupational dermatitis were surprisingly scanty. But, latterly very numerous and considerable contributions to the subject have been made in France, Germany, America, and other countries, as well as in Great Britain, where Prosser White's *Occupational Diseases of the Skin*[3] constitutes a summary of the subject which has a world-wide reputation for its valuable and encyclopaedic information.

The reasons for the increased interest in these conditions are not far to seek. We live in an age where new industries have a high birth rate. Chemistry and physics have advanced with great rapidity, and these advances are ever being applied to industries of all and every sort. Our bread must be whitened, our leather dyed, our rabbit skins converted into rarer furs, our metal and furniture polished, our faces "lifted," and our hair and complexions transmogrified. Moreover, as has been aptly pointed out by O'Donovan,[4] our modern town homes have been turned into miniature chemical factories.

"The home worker," he states, "has her hands immersed in water for hours at a time; hot alkaline cleansing lotions are in frequent use; strong soaps and sodas, quick chemical cleansers, and even chloride of lime are employed to save time, while strong or dilute acids are used to clean lavatory basins and closet pans. Metal polishes, furniture polishes, leather preservatives, and metal pastes are sold extensively. Quick-drying enamels and paints, varnishes, special rapid paint renovators, storage batteries, disinfectants, insecticides, and artificial plant manures are in daily use."

These circumstances account for the greatly increased incidence of occupational dermatitis—the enormous increase in the statistics has probably other causes also. The provisions of the Workmen's Compensation Act have focused the attention of employer and workman on the subject, a whole host of chemical and other experts have investigated it, and dermatologists—especially those practising in large industrial centres—have become familiar with the clinical aspects, so that many cases heretofore unrecognized are now speedily entered up in their proper category.

PROBLEMS CONFRONTING THE DERMATOLOGIST

For the proper diagnosis and treatment of these cases much more than a mere knowledge of skin lesions is requisite. Painstaking and subtle inquiry, and an intimate and detailed knowledge of industrial processes, as well as of chemistry, are needed, and experts in these matters may have to be consulted. One great difficulty is that we are frequently concerned with matters of degree rather than kind.

The skin or external covering of our bodies reacts to an infinitude of stimuli, and it is difficult to name almost anything which in excess, or under special circumstances, may not give rise to skin lesions. It may not be easy to assess how far such an agent is merely actuating or is to be held fully responsible. Thus, sunlight, for all its health-giving properties, may produce an acute dermatitis if exhibited in excess to a healthy skin; it may also determine, or at least aggravate, the lesions of lupus erythematosus, or pellagra, in special subjects. Air can cause damage by pressure, or the lack of it, and cold drying winds are baneful to certain skins. Even water can be an instrument of harm in many different ways. The skin damage may range from the painful and frequently fatal cancerous conditions produced by *x* rays, through the severe types of dermatitis caused by irritant chemicals, to the quasi-physiological callosities on a workman's hands, or to the so-frequently seen rough patches on a child's cheek, due to an injudicious use or choice of soap. Nor is the skin a definite constant in the equation. It does not react as a mere chemical. The individuality of the patient, his previous history, and general health have to be examined, and such conditions as focal sepsis, xerodermia, and seborrhoea considered. Idiosyncrasy to outward applications or substances taken internally may have strange consequences.

I have seen a patient covered from head to foot with a most intensely vivid irritating scarlatiniform rash a few hours after taking a single grain of quinine. The same accident had occurred in her case twice previously. An old lady's skin, which appeared to be irritated by nearly every soothing application I could think of, reacted most satisfactorily to a weak solution of picric acid, which had proved irritating to two surgical patients I had seen in the same week.

NOMENCLATURE

It would be helpful if we could have an *ex cathedra* pronouncement of the exact meaning of eczema, as well as of anaphylaxis and allergy, all of which fluctuate in meaning with different users.

As regards eczema, one school, finding the name a source of confusion, excludes it from its terminology, preferring "dermatitis." Another includes under the term all cutaneous reactions which are clinically covered by Tilbury Fox's definition, whether due to an external or an internal agency. Brocq regards eczema not as a specific disease, but as a specific type of reaction of the skin to a variety of causes in predisposed individuals. He prefers the use of the adjective "eczematized" to the noun "eczema." Raoul Bernard[5] prefers the term "eczematoid," and speaks of occupational "false" eczemas. These are, he says, all vesicular or weeping epidermites of which we do not know the cause; when we do know the cause they cease to be eczema. He quotes Sabouraud to the effect that when we know all the causes there will be no more eczema. Percival[6] states that the terms "eczema" and "dermatitis" are now generally regarded as synonymous. Many other conflicting definitions could readily be amassed. For myself I can see no cogent reason to depart from what Wallace Beatty taught me—namely, that if an eruption possesses the clinical and histological characters of eczema it *is* eczema. Eczema to me connotes a clinical syndrome. It is a particular form of dermatitis, just as dermatitis itself is a particular form of dermatosis (Darier, I think, holds a similar view). In this sense eczema is not a full diagnosis: I freely admit it. But I regard the term as useful, and I am indebted to the London Hospital for two excellent qualifying words—Sequeira's "diathetic" eczema, and O'Donovan's "exogenic" dermatitis.

What are the differences between an exogenic dermatitis and a diathetic eczema? In a majority of cases we have in the former a history of a capable irritant, the lesion

* Made in opening a discussion in the Section of Dermatology at the Annual Meeting of the British Medical Association, Dublin, 1933.

confined to the seat of its application, not tending to spread, healing quickly when, and only when, the irritant is absolutely withdrawn and not recurring in its absence. In addition, we may get confirmatory evidence from patch tests, etc. On the other hand, a trade dermatitis *may* give rise to lesions appearing symmetrically, and in regions far remote from the application of the irritant, just as I have more than once seen a similar condition break out in a patient suffering from neglected varicose ulceration of one leg without a previous history of eczema. Foerster[7] would appear to restrict the term " dermatitis " to the localized form ; he would, as I understand him, regard the spreading form as due to an induced allergy, and therefore coming under his definition of eczema—a dermatitis occurring in an allergic or specially sensitized skin. Allergy has, however, been frequently incriminated for the localized forms.

And what of eczema? Can we say that we are surely familiar with a diathetic eczema in which external irritation plays no part? I think not. No child is born with eczema, but eczema frequently makes its appearance after the infant's skin first meets such trivial irritants as soap, air, or light. Adamson regards protection as the keynote of the successful treatment of infantile eczema. Surely a profound truth. Lane[8] proposes what appears to me an excellent method of nomenclature, which would be valuable from the point of view of obtaining accurate statistics. He suggests " dermatosis industrialis " as a generic term to be in every case particularized, as, for example, " dermatosis industrialis, eczema, baker " ; or " dermatosis industrialis folliculitis, oil." Incidentally both might be further particularized.

Percival[6] has quite recently investigated the " eczema " reaction to certain groups of skin irritants in different concentrations. He has shown that in the first group the reaction of the concentration to the percentage of positive reactions obtained was similar to many dosage and action relations known to exist between other drugs and tissues, under conditions where the intervention of antibodies need not be considered. Their relation, he remarks, seems to depend on an unexplainable individual variation in the population. I consider his paper a most apposite contribution at a time when almost every individual difference of reaction is labelled " allergic." He concludes with the observation that the common factor of individual variation which governs the cutaneous response to Group 1 substances raises a delicate point in connexion with the question of compensatable disability. One of our most difficult problems is to assess the liability where a dermatitis is in part due to occupation and in part caused by some slight departure from normal of the patient himself—for example, xerodermatous skin. There is also often a very considerable difficulty in getting a correct history of an exogenic dermatitis.

A most truthful lady with an eruption on her neck strenuously denied the possibility its being due to any external irritant, but at her next visit remembered a necklace of lacquer beads, which were most obviously responsible. On the other hand, a man who developed a scalp irritation from a hair restorer, and subsequently suffered from eczema in other parts, denied previous attacks, but I afterwards learnt of his having been previously treated for eczema.

Another difficulty, the psychological factor, is, as has been stressed by our president,[4] not sufficiently recognized. He maintains that " just as pains and disabilities (following a surgical accident) may disappear marvellously after a county court settlement, so too an application of " golden " ointment can work equal wonders in dermatology.

In dealing with the difficulties of symptomatology and diagnosis Raoul Bernard[5] lays it down that:

1. One substance can give rise to several different clinical syndromes.
2. Different substances may cause the same clinical picture.
3. A given profession may give rise to the most diversified dermatological entities (Oppenheim).

He recommends the cuti-reaction by test patches as a diagnostic method, and also its prophylactic use prior to employment ; but he quotes Steiner as saying that only 12.5 per cent. give specific reactions, and Oppenheim that these cutaneous reactions vary from time to time even in a few days. He mentions that simulation is practised by methods which would appear to require an intimate knowledge of the action of drugs and other substances on the skin. Dr. Overton[9] has stressed a most important point—namely, that in many cases a trade dermatitis is caused not by the substances encountered at work, but by their removal by injurious substances—for example, strong alkalis, methylated spirit, turpentine, paraffin, petrol, naphtha, acetone, etc., used as cleansers, degreasers, etc.

It is obviously impossible in the space at my disposal even to touch on many of the occupational dermatoses. I will therefore refer to one or two particular instances, as examples of the type of problems that confront us, and the different opinions of authorities.

Baker's Dermatitis

This was recognized more than two centuries ago. It was supposed to have become much more common during and after the great war. Prosser White,[10] investigating the condition, arrived at the conclusion that " there is no eruption specific to or distinctive of these industries (bakers and confectioners), unless eczema can be so labelled," and suggests that the majority of these cutaneous disorders are " incidents in, rather than consequences of, the work." A. C. Parsons[11] investigated the matter very fully. He found the increase in general exaggerated, though there was considerable increase in some localities. Probably some 50 per cent. of the supposed cases were sugar dermatitis ; others were scabies. The alleged causes of the condition are very numerous.

Cases are relatively common where the dough is hand-mixed, especially in the lack of proper cleanliness (dough drying on the skin), and Parsons regards protein sensitization as culpable in some of those cases where elderly workers become suddenly intolerant. The dry flour can hardly be to blame, as millers do not suffer similarly. (On the other hand, Mummery[12] shows that flour dust contains mycelium, which gives rise to an itchy vesicular rash resembling sudamina, from the vesicles of which the mycelium can be recovered. The condition can spread in the patient and to others by inoculation of skin abrasions.) McCormick Mitchell, quoted by Parsons,[11] stated that 55 to 65 per cent. of his cases were due to an acarus. Parsons was not impressed by the likelihood of the condition being due either to inferior war flour or to the chemicals used for whitening it. On the other hand, Teleke and Zitzke[13] found skin tests positive with ordinary flour in half the patients treated, with improved flour in two-thirds. Ammonium persulphate caused the severest reactions, and should, they consider, be discontinued as an improver. Dr. Zitzke[14] has carried out satisfactory desensitization experiments with rye flour and improved flour. Hansman,[15] as the result of experimental investigations, definitely incriminates ammonium persulphate, and believes the allergic nature of the dermatitis proved. C. Stern[16] finds no foundation clinically or experimentally for the belief that flour, or the substances generally used

in Germany for bleaching or improving it, are responsible for the eczema. Attempts to desensitize with flour are useless. Baker's eczema is a disease, like other industrial eczemas, in which a series of injuries can act like eczematous irritation and have a cumulative effect. De Jong[17] attributes the condition to salt, and compares it with that produced in drysalters and packers and rock salt workers. Probably excessive sweating is a predisposing factor. Ichthyosis has also been blamed. K. Wills[18] found dandruff a frequent accompaniment. Barber[19] refers to "inborn intolerance of certain substances applied externally." He also quotes a case of baker's eczema showing the phenomenon of local sensitiveness of the forearm skin to flour.

DERMATITIS DUE TO DYES

The dye industry gives rise to a number of cases of dermatitis occurring amongst workers in it and also in wearers of dyed material such as furs or the users of cosmetic hair dyes. The most commonly inculpated substances are para- and meta-phenylenediamine and para-amidophenol. But the mordants (metallic and chrome salts) used are also culpable. The skins themselves (if improperly cured) and the tanning materials may also prove irritants. The impregnated substance of the dye used is oxidized to the required colour, and it is somewhat generally held that these dyes and their fully oxidized products are comparatively harmless, while their intermediate oxidation products are the noxious irritants. In France this manufacture of artificial furs is an industry of considerable national importance, and it would appear from the French literature that by general hygienic methods—withdrawing the noxious dusts by fans, using machinery to replace the handling of the dye when in noxious concentration, and the use of gloves, etc.—the risks of dermatitis have been reduced to a low minimum. Balsac[20] states that, on examination of the employees in a factory using up to twenty-four million rabbit skins per annum, he found no case of acute anilism, but a certain number of minor chronic conditions. He concludes that these would become rarer and more benign were the prophylactic rules more rigorously applied. Dr. Carles,[21] speaking of the aniline dyes, states that they are not certainly always noxious, but often become so if the skins have been insufficiently washed, or as a result of imperfect oxidation of the dye, or by predisposition on the part of the wearer. He stresses the importance in diagnosis of the topography of fur dermatitis. It is essential to bear this fact in mind, for if not so recognized and appropriately treated, scratching will cause the lesions to become eczematized, infected, lichenified, and deeply infiltrated. M. Audistère[22] emphatically states that if oxidation is complete the dyed fur ceases to be harmful, but adds that there is an individual factor, and that a person who for long has worn a fur without inconvenience may suddenly be affected for no known reason. He also mentions "emanation" from certain dyes which is manifest on the paper in which the article is wrapt. Theoretically, he says, this should be harmless, but evidently is not. Caseneuve[23] mentions a case in which an impurity (arsenic) in the dye, rather than the dye itself (in this case fuchsine), was the noxious agent. Ingram[24] does not consider the intermediate oxidation product theory proven. From his experiments he concludes that dye dermatitis is essentially allergic. Some, 4 per cent. of normal individuals show an idiosyncrasy to the phenylenediamines. His positive patch test cases had a latent period of from twenty-four hours to twenty-four days. This renders the test a formidable matter to use, as has been suggested, prophylactically, on workmen prior to employment. Babalian and Reitlinger[25] are of opinion that ursol dermatitis is not allergic, but a purely local reaction of eczematous or pruriginous type. As regards the identification of a dye in a suspected fur, H. E. Cox[26] has worked out a very complete method of chemical analysis, and has demonstrated the different microscopical appearances of the furs of different animals. Callan and Strafford[27] show that these tests may be interfered with by leather extracts or tannin materials, a conclusion which Cox fully endorses.

CANCEROUS CONDITIONS

The frequency of an occupational cause in cancer of the skin is probably insufficiently recognized. Creosote and coal tar and its derivatives are potent sources, and they are being increasingly employed in road making, wood preserving, gas making, etc. Soot, tar, creosote, anthracene, and other products—at any rate in their impure forms—are known to be carcinogenic. Mineral oils are a well-recognized source. *X* rays have made a costly death roll. Chronic solar dermatitis may give rise to the classical "sailor's skin," but is probably a carcinogenic factor of far wider action than is implied by this condition. O'Donovan[28] has observed cancers of the hand in many outdoor workers (scavengers, farmers, road sweepers, etc.). Arsenic, used in sheep dip, paints, smelting operations, etc., is also a cause. The cause is apt to be overlooked in many instances on account of the considerable latent period in cancer production. Bland-Sutton[29] has recorded a case of soot cancer with a latent period of thirty-five years. Many of the recorded cases of occupational skin cancer had long ceased to work at the incriminated industry ere the malignancy was recognized. S. A. Henry,[30] investigating mule-spinner's cancer, has shown that the affection most frequently occurs in men employed at the industry for from thirty-five to fifty years, though it has been known as early as sixteen or as late as sixty-three years. In many cases, however, the tumours did not develop until a later date, the workman having retired from the industry some years previous to its appearance. Similarly, it has been shown that if animals are subjected to a cancer-producing substance for a time, and the treatment is then stopped, tumours will develop later, just as if the agent had been in operation the whole time. O'Donovan has shown that tar and creosote produce multiple carcinomatous skin lesions of a squamous and prickle-cell type, mostly on the face, forearms, and scrotum. Secondary growths are uncommon. Anthracene in the pure form does not appear to be carcinogenic, but handlers of anthracene cake are liable to skin carcinoma. These are usually single, and squamous or horn-celled. Other lesions—for example, acne, pigmentation, and telangiectasis—are common in such workers. Atrophy, vascularity, and some pigmentation of the skin are characteristic of *x*-ray dermatitis, and O'Donovan records fifteen recognizable erythematous superficial rodent ulcers on the trunk of a professional radiographer.

TREATMENT OF OCCUPATIONAL DERMATITIS

In respect of treatment of industrial dermatoses our first care should be prophylaxis. Persons whose skin suggests vulnerability should be excluded from skin-irritant industries. These include the young, and those with delicate-looking "thin" skins. By this I mean that type in the treatment of which we instinctively shrink from using any but the mildest remedies. It also includes those with a tendency to hyperidrosis, the markedly seborrhoeic, the xerodermatous, and persons whose circulation is especially defective, thus rendering their skin

more vulnerable and their healing power less. Next, employers should see that the handling of noxious substances is reduced to a minimum by the substitution of machinery, and should supply all possible facilities to the worker for the proper cleansing of his skin. The workman should be instructed in this essential procedure, and warned against the undue use of deleterious skin cleansers—for example, alkalis and defatting agents. Attention to the proper cleansing of workers' clothes is also often necessary. When required the use of gloves, or the preparatory treatment of the skin with unguents, varnishes, protective soaps, should be obligatory, and close-woven overalls tightly buttoning at wrists and neck may be necessary. Dust should be reduced to the utmost by means of special ventilators, electric fans, etc. In certain cases dermatitis may be avoided by the use of pure products where the crude substance may be baneful. The next essential in treatment is that the afflicted worker should be removed immediately from the irritant. The remedial applications employed will in every case depend on (*a*) the appearance of the skin lesion produced, and (*b*) the nature of the irritant producing it. It may require experience and careful investigation to determine the latter. In general, methods of desensitization appear to have met with only limited success. Radon is of special use in the malignant cases. Whatever remedies may be employed the importance of protection of the skin should never be lost sight of. Scratching may give rise to a vicious cycle of prolonged irritability, even apart from secondary infection.

CONCLUSIONS

Occupational dermatitis is probably a much more common condition than is popularly supposed, and is becoming commoner daily.

It is ever more important that dermatologists and others should be competent to recognize it, and diagnose fully its causes.

To do so is, in many cases, no easy matter. The co-operation of expert chemists and physicists, as well as employers of labour and employees, is necessary if in the future we are to succeed in doing the best for our patients and giving the fullest help to the State in the economic and hygienic questions involved.

It is regrettable that we are not in full agreement as to the meaning of all the terms we employ.

In many trades we are as yet far from unanimous on the mode of action of the agent or agents causing dermatitis.

In these matters we welcome all expert aid, from within and without the profession, and trust that a meeting such as this may help to solidify the foundation of this increasingly important subject.

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OCCUPATIONAL DISEASES OF THE SKIN*

BY

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Diseases of the skin caused by occupation not only present a difficult problem to those concerned with preventive measures, but they are also an increasing burden on industry in those countries where they are the subject of compensation, such as is the case in Great Britain. I should offer some apology for presuming to address members of this Section, and my excuse for doing so is conveyed in the first sentence of this paper. I look for guidance from members of this Section, with their greater knowledge of dermatology, who, by their expert advice, can assist those of us who are engaged in the preventive side of industrial medicine.

In Great Britain the diseases of the skin which we recognize as due to occupation extend over a very wide field. They may be divided very broadly into two groups. The first, and by far the largest, is covered by the comprehensive title "dermatitis and ulceration of the skin due to dust or liquids"; the second comprises diseases due to specific causes—namely, chrome ulceration due to chromic acid and certain chrome salts, and epitheliomatous ulceration of the skin produced by the now well-recognized carcinogenic agents, pitch, tar, paraffin, mineral oil, bitumen, and the compounds and residues of these bodies. Lastly, comes infection of the skin by the *Bacillus anthracis*.

DERMATITIS FROM DUST OR LIQUIDS

Dealing first with dermatitis and ulceration of the skin produced by dust or liquids, Table I, showing the number of cases compensated from the year 1927 to 1931, clearly demonstrates the importance of the subject to which I have referred in my opening remarks.

* Read in opening a discussion in the Section of Dermatology at the Annual Meeting of the British Medical Association, Dublin, 1933.

TABLE I.—*Cases of Dermatitis and Ulceration of the Skin Produced by Dust or Liquids for which Compensation was Paid*

Year	Cases
1927	940
1928	1,215
1929	1,456
1930	1,521
1931	1,352

I would say here that dermatitis in Great Britain is not a notifiable disease as is, for example, lead or mercurial poisoning, or the other specific diseases of the skin which I have mentioned—chrome ulceration, epitheliomatous ulceration, and anthrax. We have, however, I am glad to say, a very good understanding with employers, so that the great majority report to us when they find cases of dermatitis occurring among their employees. I consider that we are therefore fully supplied with information regarding a large percentage of the cases. From this we have collected, so far as we have been able, particulars of the chief occupations in which these cases occur, and the causative agents. The following tables (II and III) have been compiled by my colleague Dr. Sibyl Horner.

It is by no means easy to establish the actual causal agent in each case, but it appears to my colleagues and myself that there are few, if any, substances used in industry that will not, in certain individuals, produce a condition which can be classed as dermatitis. Rightly or wrongly, we regard injury to the skin as often a primary factor in producing dermatitis, and we find not infrequently that friction plays a prominent part.

TABLE II

Occupations	1927	1928	1929	1930	1931	1932
Dyers and calico printers	46	50	54	104	82	104
Engineers	81	108	114	102	90	125
Labourers	22	31	31	74	56	57
Metal platers and polishers	21	47	53	65	44	64
Bakers and confectioners	33	58	50	58	56	52
French polishers	38	45	40	50	42	45
Painters	18	45	85	40	29	74
Leather workers and tanners	9	8	13	38	19	22
Chemical workers	52	37	58	31	35	40
Rubber workers	31	29	19	31	25	25
Sugar confectioners	11	26	37	30	30	38
Metal workers	19	16	27	28	21	31
Textile workers	23	18	22	20	25	29
Oil refiners	11	1	7	19	10	5
Printers	5	9	12	18	16	8
Sugar refiners	7	15	9	13	12	18
Pottery workers	6	7	8	13	5	18
Flour workers	5	3	12	9	3	9
Biscuit makers	2	4	12	8	20	30
Wood workers	11	7	8	5	7	9
Ammunition workers	7	3	24	7	7	8
Hat workers	5	6	5	5	—	5
Tobacco workers	3	11	10	7	2	11
Artificial silk workers	2	4	11	1	7	5
Glass workers	2	1	3	7	3	1
Paper workers	2	6	5	—	6	5
Preserved fruit and pickle workers	10	—	2	4	13	12
Fur workers	1	4	7	1	—	—
Enamellers	9	10	2	—	—	—
Boot and shoe workers	7	9	3	—	—	8
Builders and cement and stoneworkers	6	10	15	—	—	11
Other occupations	20	33	75	—	1	40

TABLE III

Causative Agents	1927	1928	1929	1930	1931	1932
Alkalis	72	129	157	160	155	148
Sugar	32	51	65	71	67	79
Oil	59	65	104	69	50	81
Chrome	6	19	35	57	28	51
Turpentine and substitutes	31	66	67	49	43	64
Dyes	34	32	41	47	40	48
Chemicals: unclassified	14	20	61	43	44	56
Friction and heat	17	28	25	43	31	68
Petrol, benzol, and methylated spirit	22	26	30	39	30	35
Dough	21	40	30	35	38	23
Acids	34	16	31	28	23	21
Paraffin	26	21	25	26	35	37
French polish	29	8	17	25	15	19
Nickel compounds	7	13	17	19	9	20
Accelerators	13	7	11	11	5	4
Flour	5	1	16	8	3	15
Wood dust	8	6	4	1	5	2
Explosives	3	1	15	9	3	8
Lime	8	7	2	2	—	—
Formalin	3	6	8	12	11	15
Parasites	3	3	3	9	—	1
Dinitrochlorbenzene	6	1	5	—	3	—
Tar, pitch, creosote	1	9	13	6	7	4
Water	4	6	8	—	4	2
Secondary dermatitis following injury	5	13	13	9	2	8
Other agents	30	28	31	8	15	100

Only recently I was concerned with an occurrence of dermatitis among girls employed in bleaching almonds. In this process the nuts were soaked, and all the girls had to do was to pick out the skins from the almonds and remove any adherent skin from the nut, which was easily done between finger and thumb. Nevertheless, a certain number of them developed dermatitis, commencing at the wrist, and at first sight the obvious cause seemed to be the essential oil. On inquiry it was found that those who developed the condition were those who wore long sleeves. It appeared to me that the primary cause was friction by the edge of the garment at the wrist; the essential oil subsequently, no doubt, played its part. My colleague Dr. Henry has recently investigated cases of dermatitis among those engaged in canning celery; here again it would appear that friction was to be regarded as a prime factor.

Having this in mind, therefore, it seems to me that prevention lies in securing an intact skin. It is obviously inconsistent with this principle to employ anyone whose skin shows abnormality. A skin affected by disease is essentially one that will react unfavourably to contact with any irritant, either a dust or a liquid; and among irritants must apparently be included such innocuous substances as water and flour when these are in contact with the skin over prolonged periods. For this reason we advocate preliminary examination of the skin of the hands and forearms of workers who are employed in processes known to give rise to dermatitis.

The difficulty—and one for which I have found no solution—is that in certain occupations one sort of skin, a moist, greasy skin, appears to be more easily affected, while a somewhat harsh, dry skin remains unaffected, and vice versa. I would suggest that in all cases of dermatitis considered to be due to an industrial occupation a very

close scrutiny of the skin is desirable in order to enlarge our knowledge of the predisposing skin condition, which is often loosely described as "susceptibility." Believing that injury to skin, whether caused by friction or accident, is a factor in the production of dermatitis, we advocate a periodic inspection of exposed parts of the skin so that any injury may be treated and, if necessary, the affected person transferred to work not exposing him to the risk. In some instances this is required in Great Britain by regulations or welfare orders—for example, the Chromium Plating Regulations, and the Biscuit Factories Welfare Order.

Special Prophylaxis

Of other preventive measures the most obvious, of course, is protection of the hands by means of gloves, and if the use of these were always practicable and could be made in all circumstances and carefully supervised, industrial dermatitis would, no doubt, be a thing of the past. In certain circumstances, such as the use of strong acids or alkalis, they are essential, but in other operations, such as biscuit-making, baking, sugar confectionery, and the like, and in certain mechanical operations, they cannot be used; indeed, in certain conditions they may be liable to produce grave accident. Moreover, there are certain delicate operations which do not permit the use of gloves. Sometimes the use of an emollient is, we believe, valuable, particularly where the skin is exposed to a defatting agent, such as spirit, turpentine, and the like. We recommend that this should be applied before work and after washing following work. Incidentally, suitable washing accommodation, with the accessories, warm water, soap, towels, etc., is essential in the prevention of dermatitis. There have recently been put on the market air-drying machines in place of towels, but present experience of these does not justify us in recommending their being installed in place of towels.

One of the most common causes of dermatitis is that due to oil—lubricating oil used in engineering works, more particularly. In my view the acneiform condition that this produces is due to the blocking of the hair follicles from grease and dirt, which occlude the mouth of the glands. We do not think that the septic condition which follows is due to the organisms present in the oil. Examination of such oils has shown that pathogenic organisms are rarely, if ever, present, and therefore we consider that the infection, when it does take place, occurs from the organisms whose normal habitat is the skin. We have found valuable as a measure of prevention the use of a solution—Dakin's solution. Buckets of this are placed in the wash-places or even in the shop, where the workers can immerse their hands prior to washing, or even before commencing work. We have found that this has reduced the incidence of this form of dermatitis.

Chrome Ulceration

Passing on now to the occupational skin diseases due to specific causes, the first I would refer to is chrome ulceration. This is due to the action of the salts of chrome and to chromic acid. There has been an increase in the number of notified cases of late years, following the introduction of a method of rendering metal surfaces non-rusting—namely, chromium plating (Table IV).

Here the worker is exposed to the chromic acid from the solution used in the bath in which the articles are immersed. The action of the chrome salts and chromic acid on the skin produces the typical "punched-out" ulcers characteristic of this form of skin disease. I am glad to say that the serious results which formerly occurred—namely, infection of the joint causing loss of fingers—are not now met with. The regulations for

Table IV.—*Chrome Ulceration*

Industry	1928	1929	1930	1931	1932
Bichromate manufacture	3	13	6	2	2
Dyeing and finishing	28	21	15	8	9
Chrome tanning	4	1	5	3	9
Chrome plating	17	59	57	41	47
Other industries	18	12	12	11	10
Total	70	109	95	65	77

chromium plating issued by the Home Office require, in addition to the other preventive measures which I have outlined above, examination of the hands and nose at fortnightly intervals by a medical practitioner—either the certifying surgeon or a duly qualified medical practitioner approved by the Chief Inspector. Arising from this examination a number of cases are notified, though the worker is not necessarily suspended from work. Special requirements are made regarding the first-aid treatment of wounds, and a cautionary notice is required to be exhibited in the works. In passing, I may remark that the dust of chrome salts, and the spray of chromic acid, produce ulcers of the mucous membranes, particularly the nose, in which perforation often occurs. It is interesting to record that, so far as I can learn, no serious sequelae of these ulcers of the mucous membrane occur.

Disease from Carcinogenic Agents

Epitheliomatous ulceration, or cancer of the skin, due to pitch, tar, mineral oil or paraffin, bitumen, or any compound, product, or residue of any of these substances, causes a greater number of fatalities than any other notifiable industrial disease. While the occurrence of epithelioma from pitch and tar has for many years been recognized, epithelioma due to mineral oil is a later recognition of this form of industrial disease. In 1922 Southam and Wilson collected particulars of cases of cancer of the scrotum occurring among mule-spinners admitted to the Manchester Royal Infirmary, and since that date the industrial origin of these cases has been established. From the figures given in Table V of notified cases it will be seen that there was subsequently a very considerable increase in the number notified, due undoubtedly to the recognition of the cause of this form of epithelioma.

Table V.—*Epitheliomatous Ulceration*

Causative Agent and Industry	1922	1924	1926	1928	1929	1930	1931	1932
Pitch and tar:								
Patent fuel works ...	19^{1}	11	27	20	27^{1}	24^{1}	29^{2}	16^{1}
Tar distilling	6	15^{2}	18^{3}	23^{4}	36^{3}	41^{1}	15^{1}	26^{3}
Gas works	2^{1}	1^{2}	15^{9}	17^{13}	16^{10}	23^{6}	14^{8}	17^{13}
Other industries ...	—	4^{1}	16^{2}	8^{2}	8^{1}	9^{2}	18^{4}	11^{2}
	27^{2}	31^{5}	76^{14}	68^{19}	87^{15}	97^{10}	76^{15}	70^{19}
Paraffin:								
Shale oil works	5^{1}	2^{1}	2	2^{1}	4	—	2	1
Oil:								
Cotton mule spinning ...	—	79^{17}	88^{20}	101^{36}	54^{24}	82^{21}	60^{19}	57^{22}
Other industries ...	—	11^{1}	21^{15}	4^{3}	20^{11}	15^{5}	18^{12}	3^{3}
	—	90^{18}	109^{35}	105^{39}	74^{35}	97^{26}	78^{31}	60^{25}
Total	32^{3}	123^{24}	187^{49}	175^{59}	165^{50}	194^{36}	156^{46}	131^{44}

The principal figures relate to cases, the raised figures to deaths.

The following table, giving the sites of the lesions, is of interest.

TABLE VI.—*Reported Cases of Epitheliomatous Ulceration (1920–32)*

Site	Pitch	Tar	Paraffin	Mineral Oil		Total
				Cotton Mule Spinners	Others	
Scrotum	125	110	10	487	60	792
Penis	2	10	—	14	4	30
Groin	2	3	—	10	2	17
Vulva	—	—	—	—	3	3
Eye and eyelid	45	14	1	10	2	72
Cheek	53	16	—	15	3	87
Lip	44	12	—	2	—	58
Head (scalp)	6	1	—	—	—	7
Forehead	8	5	—	1	4	18
Nose	32	7	—	5	3	47
Face	14	10	—	22	8	64
Chin	10	1	—	—	—	11
Ear	17	14	—	6	2	39
Neck	25	12	2	4	1	44
Arms (wrist)	20	47	14	68	8	157
Hand	10	22	5	22	10	69
Finger	4	4	—	3	1	12
Chest	1	—	—	1	—	2
Thigh	—	—	—	9	2	11
Knee	—	—	—	9	—	9
Leg	1	1	3	16	—	21
Foot (toe)	—	2	1	3	—	6
Multiple	29	14	1	8	4	56
Total	448	315	37	715	117	1,632

Preventive measures must be directed, of course, to the avoidance of contact with the carcinogenic agent, but by those acquainted with the industry it will be realized that it is almost impossible to ensure entire freedom from contact. There are no means available at the present time of eradicating this disease, but I think much can be, and has been, done by early detection and treatment. In Great Britain we have advocated and introduced extensively periodic medical examination of workers exposed to these carcinogenic agents. Cases of papilloma, or areas of keratosis, which may progress to malignancy, are in this way disclosed and treated. So far as I know, the treatment of choice is by radon. In the case of mule-spinners (those exposed to the mineral oil of self-acting mules) the schedule to the Workmen's Compensation Act has been extended to grant compensation for the period of treatment for early cases of papilloma or keratotic areas of the skin due to mineral oil. This, it is hoped and believed, will encourage treatment at an early stage. The judge or court has power to extend the fortnight of compensation if it is shown that a longer period of disablement is caused by treatment.

ANTHRAX

As regards the last of the occupational skin diseases with which I am concerned—namely, cutaneous anthrax—it would seem to me that this is in a different category. It arises among workers exposed to infection from infected wool, hair, hides, and skins. The cases of cutaneous anthrax notified in Great Britain during the last five years are enumerated in Table VII.

It is quite obvious that the only sure preventive measure lies in the disinfection of the infected material before it is handled. Disinfection, however, does not at present come within the realms of possibility for all classes of infected material. No practical method, for example, of disinfecting hides and skins has been devised, although treatment with the sulphur lime process, in those cases where it can be applied, does seem to diminish the infectivity of hides. Some of you are no doubt aware that the Home Office has established a disinfecting station at Liverpool, dealing with certain classes of wool, and the extension of disinfection to others coming from infected districts is always under consideration.

TABLE VII.—*Anthrax*

Industry	1928	1929	1930	1931	1932
Wool	14^2	16^2	13^1	8^1	11^1
Horsehair	4^1	3	1	3	2
Hides and skins	24^3	20^3	24^4	7^1	2
Other	3^2	1	5^1	1	1
Total	45^8	40^5	43^6	19^2	16^1

The principal figures relate to cases, the raised figures to deaths.

While in Great Britain the general principles as to dust removal and cleanliness can be, and are, enforced by regulations, we cannot depend upon them to prevent entirely the occurrence of cutaneous anthrax. The disease does not, however, now present the problem that it used to do in the past, for the introduction of treatment by Sclavo's serum has, if the disease is taken in time, to a large extent eliminated a high mortality rate. Every effort, therefore, is necessary to ensure an early diagnosis of anthrax. Anthrax is by no means a common disease, and it is my experience that where fatalities do occur there has been failure to recognize the condition and a consequent delay in the patient receiving appropriate treatment. For this reason, in addition to notices exhibited in workplaces, where infected material is handled, the Home Office has designed a card which can be given to every individual worker. The object of this card is to hint to the medical practitioner invited to treat a local lesion in a worker exposed to risk that it is inadvisable to apply local treatment without at the same time eliminating the possibility of anthrax infection by means of a bacteriological examination.

These are, I believe, the principal occupational diseases of the skin. As I have already said, they present a difficult problem to those concerned with their prevention. They are also an economic factor of no inconsiderable moment. I have endeavoured to indicate, briefly, the general lines adopted in Great Britain to prevent, not only the occurrence of these cases, but also the severe results which occur if the primary condition has been neglected.

ROLE OF FUSION OPERATIONS AS APPLIED TO THE HIP-JOINT*

BY

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The invitation to address this Section and to open the discussion on the "Role of Fusion Operations as applied to the Hip-joint" is an honour which I deeply appreciate. My pleasure in accepting the invitation, however, is tempered by an uncomfortable feeling that I have nothing new to offer on the subject. Fusion of the hip-joint is not a common operation even in large surgical centres. As I stirred my memory I could recall the many difficult problems I had encountered in surgery of the hip-joint, my frequent indecisions as to the course to pursue, and, alas! the too frequent poor results which followed my best judgement and efforts. With such a background I

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Dublin, 1933.

concluded that my best plan was frankly to present the results of those experiences in the hope that my audience might glean here and there something of interest and profit.

During the twenty-five years of my service in the Mayo Clinic caring for patients with orthopaedic disorders I can assure you that no patients have caused me and my colleagues more concern than those with lesions of the hip-joint, such as congenital, traumatic, inflammatory, tuberculous, osteoarthritic, or neoplastic. An operation on a hip-joint is a major surgical procedure, and the surgeon must be skilful and must exercise good judgement. While incoordinated haste may actually prolong the operation, safe speed is essential: prolonged operation on the hip-joint produces shock. Discussion of this topic is, in my opinion, timely. In view of the many more or less comparatively recent procedures in surgery of the hip-joint, such as the shelf operation for dislocated hips, congenital or paralytic, Lorenz's bifurcation operation, Schanz's osteotomy, the reconstruction operations of Whitman and Brackett, and arthoplasty for ankylosed and partially stiff hips, it would be well to discuss the part that fusion plays to-day in dealing with lesions of the hip.

Physiology

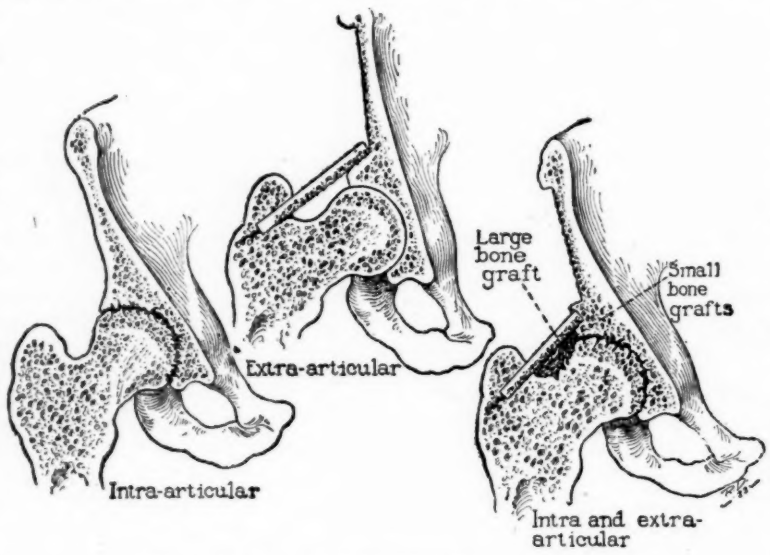
The function of the hip-joint is to furnish not only stability but mobility, the former to permit the erect posture and the latter to facilitate walking, sitting, stooping, and so forth. The joint owes its stability to the character of ball and socket, and to the tonic contraction of the surrounding muscles. A certain degree of negative intracapsular pressure in the acetabulum aids in keeping the ball secure, or dislocations would be more common in the flail-hips of paralysis. The ilio-femoral or Y ligament is important, for it prevents hyperextension, although reconstructed hips with good musculature following arthroplasty function without it. The most important function is stability, since mobility is not essential for walking; ankylosis in the favourable position of slight flexion and abduction permits an almost normal gait. Bilateral ankylosis is, of course, quite incompatible with anything approaching fair and comfortable locomotion. Motion without stability, as is encountered in infantile paralysis, causes a useless flail-hip. The muscles serve as the guy ropes to steady the pelvis on the weight-bearing leg, and when they fail the hip is useless for weight-bearing.

Fusion

Fusion may be employed for the sole purpose of furnishing stability, as in a paralytic flail-hip, which, although anatomically sound, is physiologically unsound. Or it may be employed in a hip definitely, anatomically, and physiologically unsound, as in tuberculosis, the object of the operation being not only to improve function by rendering usable a painful joint, but to eradicate disease. Fusion may be induced by any one of many operations, the technique varying. There are three main types of operation—namely, intra-articular, extra-articular, and a combination of these, called combined or mixed fusion.

Intra-articular Fusion.—The purely intra-articular type of operation consists of wide exposure and opening of the joint, manipulating the head out of the acetabulum, and removing the cartilage entirely; the same careful removal of the cartilage is carried out in the acetabulum (see Figure). The object is to obtain contact of the raw bone of the head to the acetabulum and thus give opportunity for fusion. The frequent cause of failure in these cases has been due, I believe, to the fact that, with the head smaller and the acetabulum larger, there is a misfit, and consequently insufficient and unstable bony contact. This may be partially obviated by roughening the freshened surfaces of bone on both the head and the acetabulum, a procedure which has the advantage of permitting the removal of pathologic debris and tissue such as is encountered in tuberculosis.

Extra-articular Fusion.—This particular technique has been advocated because of its supposed simplicity and because it enabled the surgeon to avoid opening the capsule; the latter was considered to be an advantage in tuberculosis (see Figure). Both these premisses are, I believe, open to contention. There are two types of fusion. The para-articular, in which the bone graft is taken from some distant field such as the tibia, and the juxta-articular, in which the graft is taken from the wall of the ilium, as originally advocated by Albee, from the anterior superior spine as advocated by Ghormley, or from the great trochanter as advocated by Hibbs. The object of the operation is to obtain fixation of the joint by an extra-articular splint of bone bridging from the ilium to the femur. In performing this operation for tuberculosis, the site and extent of the disease are totally disregarded. Fusion of the joint surfaces is expected to follow the splinting action of the graft gradually.



Three main types of fusion operation on the hip-joint.

Combined Intra-articular and Extra-articular Fusion.—This operation has the advantage of the two just mentioned (see Figure). The technique consists of removal of cartilage and exposure of denuded bone on the head of the femur and in the acetabulum. After the head is replaced in the acetabulum, a bone graft—obtained from the iliac wall, the anterior superior iliac spine, or the trochanter—is placed so as to bridge from the iliac wall to the femur as an additional guarantee for successful fusion. Experience in the Mayo Clinic has shown that in a series of cases of tuberculous hips in which this method was used, fusion was obtained more uniformly than by any other method, and just as quickly. Post-operative sinuses were less common, and when they did occur they healed in a shorter time than when the extra-articular method was used.

Treatment of Hip Lesions

In the Mayo Clinic from 1923 to 1932 inclusive, fusion of the hip was performed in the section on orthopaedic surgery on seventy patients; forty-three had tuberculosis of the hip, twenty-one arthritis due to some infectious process other than tuberculosis, three traumatic arthritis

following a fracture or a dislocation, two osteoarthritis, and one a dislocation due to infantile paralysis. The results are known concerning forty of the forty-three tuberculous patients and twenty-three of the twenty-seven non-tuberculous patients (see Table). They will be considered with the various types of lesions. There were no deaths that could be called surgical.

Seventy Consecutive Cases of Fusion Operation on the Hip-joint (1923–32)

Lesion	Cases	Results known	Fusion		Comment
			Cases	Per cent.	
Tuberculosis	43	40	37	92.5	Intra-articular method in 1 case; extra-articular method in 23 cases; combined articular method in 19 cases*
Infectious arthritis	21	17	14	82.3	Failure in 17.7 per cent.
Traumatic arthritis	3	3	3	100.0	—
Osteoarthritis	2	2	1	50.0	—
Infantile paralysis	1	1	1	100.0	—
Total ...	70	63	56	88.0	No deaths†

*Fusion time same, but fewer post-operative sinuses in combined method.
†One boy, aged 14, died ninety days after operation from disseminated tuberculosis.

Congenital Dislocation of the Hip

Irreducible congenital dislocation of the hip is a problem too frequently encountered. If the condition is unilateral, fusion is one of the methods to be considered for relief, but as I have never performed the operation for such a condition I cannot speak from experience. If the dislocation is bilateral the procedure may only be considered for one side. I have found the shelf operation so satisfactory that I employ it exclusively for irreducible congenital dislocations of the hip. Properly carried out it gives excellent function. So far as this condition is concerned, circumstances would have to be unusual to warrant the use of the fusion operation.

Infantile Paralysis

The residual paralysis following anterior poliomyelitis in the lower extremity is generally more severe and extensive distally, just the opposite of what occurs in the upper extremity. This fact reduces the cases of paralysed hips in which the fusion operation may be used to advantage to a comparatively small number. There is seldom any advantage in fusing a hip-joint if the knee and ankle below are also flail. It is only after most careful consideration that fusion of the hip should be undertaken in cases of infantile paralysis. Recurring dislocations in certain flail-hips can be prevented by fusion, but the shelf operation is preferred in America. In the series of cases reported here, one patient with double dislocation due to infantile paralysis was operated on ; an infective process was also involved in this case. The result was good, but of course the operation was performed only on one side.

Traumatic Arthritis Due to Fracture-dislocations

Traumatic arthritis subsequent to a fracture-dislocation involving both the head and the acetabulum may be so painful that fusion is indicated. Many factors must be considered in the treatment, such as the social status and the age and temperament of the patient. The fusion operation is, I believe, first choice for this group, because remodelling and arthroplasty, particularly in cases in which there is much destruction of the surfaces of the joints, have been generally unsatisfactory. There is a tendency for callus to reappear after the operation, which limits motion and causes pain. Fusion was performed in the Mayo Clinic on three patients with traumatic arthritis. All obtained ankylosis ; they were free of pain and were comfortable.

Infectious Arthritides

Some patients with arthritis following systemic infections due to streptococcus, staphylococcus, pneumococcus, and gonococcus recover without significant injury to the joints. Usually, however, ankylosis or so much injury to joint surfaces remains that movement is limited and painful. The hip is involved fairly often. When the inflammatory process is thoroughly quiescent function may be quite good if the hip is ankylosed or merely stiff without pain in a position that permits of weight-bearing. If this more or less satisfactory condition exists nothing is to be done. There is a group of cases, however, in which, owing to faulty mechanics, either osteotomy or a fusion operation is indicated to permit comfortable locomotion. Some patients are fortunate enough to have a good range of motion with only slight pain, and by restricting their activities may so control the soreness as to be reasonably comfortable. It is better that the condition should remain as it is, for it is not of a progressive type. Fusion causes a painless weight-bearing hip without motion, and this may be a good substitute for a hip that is very painful on use, but it must be remembered that a stiff hip is a handicap. Recommendation of fusion in such cases calls for careful study of the patient, his daily life, and his ability to accommodate himself to his existing handicap. However, patients often put up with great discomfort because they think relief cannot be obtained ; they do not appreciate what pain and inconvenience they have endured until they enjoy the relief following the fusion of the joint.

Twenty-one patients were subjected to fusion operations for infectious arthritis (see Table). The type of infection causing the arthritis could not be determined, for the patients were seen long after the acute phase of their trouble had developed. Fourteen are known to have ankylosis, four were not traced, and three failed to obtain fusion.

Atrophic Arthritis ; Arthritis Deformans

It is usually possible to draw a sharp line between the so-called atrophic and osteoarthritic type of arthritis, but in certain cases a patient may have a combination of the two. The intra-articular involvement of the hip-joint in arthritis of the atrophic type is characterized by wearing away of the articular cartilages and deepening of the acetabulum with a consequent progression of the head toward the pelvic cavity. The proliferation about the line of the joint which occurs in the hypertrophic type is lacking. The pelvic bone may become thickened within the pelvis opposite the acetabulum as a protective measure to prevent the head from pushing its way through. The fusing of this type of painful hip will relieve the pain, but it must be remembered that we are dealing with multiple arthritis of the progressive type. I have seen patients who, after fusion of one hip, had trouble later with the other. Fusion should be undertaken with caution in cases of multiple arthritis, particularly if the knee and ankle are involved on the affected side.

I have classified cases of this type in the infectious group. There were only two of atrophic arthritis in which operation was performed. In both fusion was satisfactory, but in one the opposite hip became involved later as the arthritis extended ; in the other the patient was satisfied, since the pain was relieved.

Osteoarthritis

This too common and disabling condition of the hip is variously named morbus coxae senilis, hypertrophic

arthritis, and so forth. Its treatment is so very unsatisfactory that it is only by exercising much restraint that I can keep my remarks within the bounds of this discussion. Briefly stated, there are three ways to deal with osteoarthritis of the hip: by manipulation, by plastic or reconstructive measures, and by fusion.

Manipulative measures may relieve pain in some of the earlier and milder cases. Plastic and reconstructive measures embrace excision of the osteophytic overgrowths called cheilotomy, remodelling and reducing the size of the head, excision of the head according to the technique of Whitman, and arthoplasty. All these methods have their staunch advocates. In fact, I have been almost startled by the satisfaction of certain eminent surgeons with their own favourite method of dealing with this most troublesome problem. I am free to confess that my own experience leaves me still far from satisfied with my efforts along these so-called reconstructive lines.

During the years covered by this study my efforts in dealing with osteoarthritis have been directed consistently toward preserving motion. I have used all the operations mentioned, with the result that function has been, on the whole, disappointing ; although the pain was lessened, the results were not such as to awaken my enthusiasm. Brackett of Boston, in his study of painful hips, has approached the subject and presented his results in an impartial manner. He sums up the question as to whether " to fuse or not to fuse " a painful hip by saying that in the end " the individual makes the final decision." A stiff hip may be best for a labourer, but a hip with only a half or a third motion, even if slightly tender and painful, may be preferred by one whose work is in the office or the home.

At the Mayo Clinic fusion was done in only two cases of osteoarthritis. One operation was successful, ankylosis being obtained ; the other failed, but pain was relieved. In the years previous to this report more fusion operations had been performed on patients with osteoarthritis, but, because of the occasional failure and the handicap of a stiff hip, I turned my efforts to the reconstructive type of operation to maintain motion. As I have stated, I am by no means satisfied with later results. Authorities agree that the obtaining of bony ankylosis in cases of osteoarthritis, particularly if patients are elderly, is not easy, for fusion often fails, and fibrous union only results. Subsequent adduction deformity in those cases in which fusion does not recur is therefore common.

Tuberculosis

In tuberculosis of the hip lies the greatest field for fusion. Conservative treatment, although successful in arresting the disease or maintaining quiescence in a fair percentage of cases, nevertheless gives permanent relief in too few cases to permit its acceptance as the preferred method. In America, where the population is perhaps more restive than in Europe, and in our outlying districts where suitable provision for care is lacking, it is difficult to carry out consistently the proper conservative measures. Patients do not take kindly to the prolonged recumbency that is so necessary in the conservative treatment of the acute stage of hip-joint disease. Perhaps the real reason for this intolerance of protracted conservative treatment lies at the door of the medical profession. Smith and Watters in 1926 published a report from the New York Orthopedic Hospital of the end-results of the treatment by conservative measures in 150 cases of tuberculosis of the hip. This report indicated that something was wrong with our generally accepted methods. Twenty-four per cent. of the patients died, 47 per cent. still had active disease, 27 per cent. had the disease in a quiescent state with little if any motion, and only 2 per cent. were free of all symptoms. This report stimulated increasing interest in fusion for tuberculosis of the hip. Fusion by natural processes, in my experience, has been extremely rare in tuberculosis of the hip. Fortunately, tuberculosis of the joints is on the wane in America ; this is noticeable in our larger State and charitable orthopaedic hospitals.

An operation to produce fusion of the hip is a major procedure, and only patients in good general condition, without other active foci of tuberculosis and without draining sinuses, should be subjected to it. Many surgeons favour the extra-articular method, but it is my opinion that the combined intra-articular and extra-articular operation is the more suitable if the bone is tuberculous. One of my reasons for this preference is that it permits removal of the tuberculous material and caseating debris, and the curettage and obliteration of abscesses in bone. All cartilage can be removed from the head and the acetabulum, the bone can be freshened and roughened, and good contact can be secured. The bone graft can also be used to bridge from the ilium to the trochanter.

Fusion in cases of tuberculosis is fast becoming the generally accepted method for the adult, and the operation is gradually being used for children. Wilson in 1932, at the meeting of the American Orthopedic Association, reported a series of cases among children in which the extra-articular method had given very good results. At the same meeting I reported cases from the Mayo Clinic, mostly of adults, and attempted to compare the different types of fusion. The comparison, so far as it was possible to carry it out, showed that the radical or combined operation was just as safe as the more conservative operation.

There were forty-three cases of tuberculosis of the hip treated by fusion between 1923 and 1932 (see Table). The result was determined in forty cases, and in thirty-seven (92.5 per cent.) fusion occurred. One patient has a persisting sinus. Only one patient was operated on by the intra-articular method, twenty-three by the extra-articular method, and nineteen by the combined intra-articular and extra-articular method. In spite of the fact that the combined operation is a more extensive procedure than the extra-articular operation, the time required for fusion to develop was about the same ; the results, however, were more certain, and the occurrence of post-operative sinuses was appreciably less.

Summary

Fusion operations as applied to the hip-joint obliterate mobility but leave stability. The various types of fusion are: the intra-articular, the extra-articular, and a combination of the two called the combined (mixed) intra-articular and extra-articular. The last-named is to be preferred because it gives better opportunity for thorough and complete freshening of the surfaces of bone, and for the removal of pathologic tissue and debris.

Irreducible congenital dislocations of the hip rarely, if ever, demand fusion. The same is more or less true in cases of infantile paralysis, although a higher percentage of these cases is to be considered for fusion. Fusion is more often to be favoured for the traumatic arthritides following fracture-dislocations. If hips are painful following infectious arthritides, in atrophic arthritis, and in osteoarthritis, fusion plays a very definite part, but it must be borne in mind that the operation is a major procedure, and so carries a definite risk. Elderly patients with osteoarthritis may fail to obtain fusion even after a carefully planned operation. It is the operation of choice as a final resource, and it should be used only in severe cases and after most careful consideration. The patient's temperament, his social status, his method of living, his type of work, etc., should be investigated.

In tuberculosis of the hip lies the greatest field for fusion, particularly among adults. The operation should be used for children oftener than it is at present.

PARA-OESOPHAGEAL DIAPHRAGMATIC HERNIA

BY

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While the essential factors in the cure of herniae in general are well established, defects of the diaphragm present a special problem to the surgeon for several reasons, the chief of which are: difficulty of access, congenital shortage of tissue (rendering approximation of the edges of the "ring" without tension almost impossible in some cases), and the continual movements of the diaphragm. When to these primary difficulties are added those of adhesion of contents to the sac and, in certain cases, the congenitally high position of the diaphragm, shortening of the oesophagus, and "thoracic stomach," the operation may become really formidable and fraught with considerable risk. In the case recorded here some of these problems were solved in a rather unusual manner. As over four years have elapsed since the performance of the operation without any recurrence of symptoms the method may claim to be considered satisfactory.

CLASSIFICATION

S. W. Harrington, in reviewing forty-five cases of diaphragmatic hernia dealt with at the Mayo Clinic, adopted the following classification:

- Non-traumatic
  - Congenital (usually without sac)
    - Through foramen of Bochdalek
    - Through dome
    - Through oesophageal opening
    - Through foramen of Morgagni
    - Through the gap left by the absence of the left half of the diaphragm
  - Acquired after birth
    - Through points of embryonic fusion
    - Through the same sites as the congenital type
    - Through the oesophageal hiatus (with sac)
- Traumatic
  - Indirect — Through any of the points mentioned above (when through the oesophageal opening there is usually a sac, but in the other types there is no sac)
  - Direct — Commonly following penetrating wounds (usually there is no sac)

Of the forty-five cases, thirty-one were through the oesophageal hiatus. Of these, twenty-three were acquired (history of trauma in ten), while in three there was a congenitally short oesophagus; thirteen were through the posterior half and dome of the left side, ten being due to indirect injury and three to direct injury. One case only was congenital, through the foramen of Bochdalek. The common type of hernia found in adult life, especially in the absence of trauma, is thus seen to be the para-oesophageal, and as the symptomatology of this variety is fairly definite and uniform it becomes possible at times to hazard a diagnosis upon this basis alone.

The development of the diaphragm is an exceedingly complicated and involved process, so that it is frequently difficult to determine with certainty the exact point at which developmental failure has occurred. In the case of para-oesophageal hernia, however, the failure probably lies in the development of that portion derived from the dorsal mesentery and the mesoderm of the receding Wolffian body. This not only leaves a defect of varying extent in the muscular and tendinous structures, but is also often associated with deformity in the conformation of the diaphragmatic dome and shortness of the oesophagus, with, perhaps, a "thoracic stomach." The surgeon contemplating closure thus not only has insufficient suitable tissue for suturing but may have to effect his closure round an oesophagus an inch or two shorter than normal. Even so, these difficulties have sometimes been overcome by the performance of a preliminary phrenicotomy, when the resulting diaphragmatic paralysis allows the defect to be closed without tension, while the elevation of the dome (of necessity less than is usually obtained, on account of the drawing together of the edges of the aperture) to some extent compensates for a short oesophagus. Indeed, in bad operative risks phrenicotomy may be adopted as the sole treatment: it prevents spasm with incarceration of the stomach, which usually is the only abdominal viscus involved in this type. In the case now to be described another method of overcoming these difficulties was adopted, and it proved entirely successful. In a short report there is no need to elaborate the pros and cons of the method, most of which, in any case, are self-evident.

CASE HISTORY

H. P., a well-developed man of 51, sought advice for a feeling of ill-defined discomfort under the left costal margin coming on a few minutes after a meal had been taken. The history extended back for two years, and started with occasional attacks of sudden dysphagia at long intervals. Recently, however, the attacks had increased in frequency, and now occurred with every meal. The sensation was described as a "pain having a character akin to obstruction to the gullet." Eructation brought relief, but was invariably accompanied by small quantities of fluid and food recently taken. He had developed a real fear of food, and had reduced his intake to two small feeds daily. Nevertheless there was no loss of weight, nor had blood or slime been observed in the vomit. The alarm and distress occasioned by the taking of food resembled that of an anginal attack, and afforded an explanation of the wrong diagnosis of angina pectoris sometimes made in these cases. The only other points of interest in the history were two incidents when the intra-abdominal pressure may have been unduly raised: five years previously, after a severe cold and violent coughing, a small supra-umbilical hernia had developed; while two years previously he had carried an adult male from one room to another after an accident, which effort caused "aching of the shoulders."

The patient was admitted to Charing Cross Hospital in March, 1929, and after a complete clinical examination, which proved negative, a provisional diagnosis of cardiospasm was made, with, it was thought, the possibility of gastric ulceration in addition. Radiography after a barium meal revealed an hour-glass stomach, the proximal loculus of which lay above the general level of the diaphragm and close to the lower end of the oesophagus, in which a certain amount of the meal was retained. It thus became clear that the diagnosis was one of para-oesophageal diaphragmatic hernia, but no evidence could be obtained as to the exact length of the oesophagus or the possibility of adhesions between stomach and sac.

The Operation

Operation was undertaken on April 18th, 1929, under intratracheal ether anaesthesia, skilfully administered by Dr. Howard Jones. An epigastric, paramedian laparotomy was first performed; the constriction of the stomach, where it passed through the diaphragm, was examined without any evidence of permanent damage to the wall in this situation being found. There were no intrasaccular adhesions, and, after the admission of air to the sac, the stomach was easily reduced into the abdomen. The peritoneal sac passed through the diaphragm immediately to the left of the oesophagus and aorta (corresponding to a para-oesophageal defect), and was about 2½ inches wide by 5 inches long. The sac could not be inverted into the abdomen, and efficient repair of the aperture from the abdominal aspect appeared unlikely. The abdominal wound was therefore packed and the patient turned on his right side for thoracotomy. The eighth rib was resected for practically its whole extent through a long incision extending back to the spinous processes. The pleura having been opened widely, the lung was allowed to collapse by reduction of the intratracheal pressure. After application of the usual protective measures, the lung was retracted upwards and the heart somewhat forwards, so giving a satisfactory exposure of the hernial sac, the parietal pleura over which was incised

vertically. A thin fibrous layer covered the peritoneal sac; this was also incised, and, the greater part of the sac having been removed, the aperture was closed by a ring catgut suture. The muscular defect was now discovered to be considerable, but closure without any tension was accomplished by the use of tendino-muscular strips cut from the semispinales muscles at the vertebral end of the incision. Some six such sutures were "darned" over the aperture without strain, using the well-known Gallie technique for fascial sutures. The oesophagus was slightly short, but the level of closure was carried somewhat upwards as the oesophagus was approached. The reflected pleura was now sutured over the fascial "raft," and the superficial wound shut in the usual manner, the pleural cavity being completely emptied of air by raising the intratracheal pressure and so expanding the lung before the last pleural suture was tied. The patient was turned again on his back and the stomach was anchored to the anterior abdominal wall, after the fashion of a Rovsing gastropexy, before the abdomen was closed. This, it was thought, would prevent for the time any tendency on the part of the stomach to force the diaphragmatic barrier during the period of its consolidation.

Post-operative Progress

A small left-sided pleural effusion formed with slight fever, and there were signs of pleurisy at the right base. Repeated attempts at aspiration failed, however, to remove more than a few drops of sterile fluid from the left side. Further convalescence was uneventful, and the patient left hospital forty days after admission, taking all food without discomfort. Three weeks after the operation the radiogram showed the stomach in normal position with a small effusion at the left base. Six months after operation there was some flattening of the left dome and a suggestion that the bolus had been caught up in the oesophagus for a moment before entering the stomach. The patient was quite well, but said that he could "just feel" the food entering the stomach. His general health is now (1933) excellent and all dysphagic symptoms have completely disappeared. The notes from which the above record was compiled were made after the operation in 1929, but publication was delayed in order to test the permanency of the result. Since that time several cases have been recorded in which Gallie sutures or more massive grafts cut from the fascia lata were successfully used to close the diaphragmatic aperture.

Conclusions

My experience of cases of diaphragmatic hernia is too small to enable me to make any worthy comparison of the abdominal and thoracic routes of approach. In previous cases performed entirely through the abdomen I have felt dissatisfied not only with the access provided but also with the closure of the aperture solely by sutures, applied with difficulty and usually under tension. As these cases were chiefly ones in which incarceration had occurred or were post-traumatic, it would, however, hardly be fair to make any comparison. Harrington advocates the abdominal route, perhaps accompanied by phrenicotomy, and has obtained a large number of cures by this method. W. Salisbury, in this country, has recently described a case of herniation, apparently through the foramen of Bochdalek, in which, operation being by the abdominal route, the aperture was closed "with eight mattress sutures of double catgut, and the parts came together without any tension or difficulty." He states that he found the abdominal approach very satisfactory in every way, and considers that the thoracic approach should be reserved for cases with intrathoracic adhesions. This was, however, a definite congenital case without a sac, so that the problem of the efficient removal of the sac from the abdominal aspect did not arise.

It is suggested that the method here described, while undoubtedly necessitating a more severe operation than the abdominal approach, allows a closer approximation to the ideal radical cure than the mere suture of the edges of the aperture.

ELECTRO-SURGICAL TREATMENT OF MINOR ANAL CONDITIONS

BY

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BOURNEMOUTH

W. J. Morton, in 1881, was the first to apply oscillating currents to surgery. Since then many workers have enlarged the scope of this field of surgery.

There are at present three types of electro-surgical currents in surgical use: (1) the *monopolar*, or *Oudin*, current, which is one of highest voltage, as compared with (2) the *d'Arsonval*, or *bipolar*, current, of highest amperage, and (3) the *cutting* current, also a bipolar current. The difference in the effect on the tissues of these three currents is that the Oudin is a dehydrating current. The other two are coagulating currents. The difference between these latter two is one of damped and undamped oscillations, which in practice means depth of coagulation, the cutting current having a minimum of coagulation as small as 0.1 mm., whereas the other varies the depth of coagulation up to several centimetres. The cutting current, though sealing minute vessels and lymphatics, is not used for haemostasis. I have used all three currents in the treatment of ano-rectal conditions, and with one exception the operations have all been performed under local anaesthesia.

Technique

Local Anaesthesia.—Two to three ounces of 1/2 per cent. anaesthetic solution are used. Commencing at the right anterior aspect of the anus, half an inch from the muco-cutaneous junction, a zone of fluid is injected round the anus subcutaneously, sufficient solution being used to raise the skin above the surrounding tissues. On the completion of the ring the tissues are massaged in order to disperse the solution into the subcutaneous tissues. With the left index finger in the anus the operator injects another deep zone into the sphincter muscle, which can be felt to relax as the injection takes effect. Operative proceedings should not be commenced until the finger in the rectum is swept round and meets no area of resistance. The actual procedure is practically painless, and occupies about five minutes. A useful adjunct is 1/4 grain of morphine and 1/150 grain of scopolamine between one and one and a half hours before operation.

Pre-operative Aperient.—The usual pre-operative treatment for this region is carried out—that is, bowels are well opened three to four days before by some aperient, and then the lower bowel is washed out until clear. The patient is then given 10 minims of nepenthe three times a day, and a fluid diet.

Post-operative Treatment.—Nepenthe is continued as before operation, and the bowels are not allowed to act for anything up to seven days. This, of course, varies with individual patients, the criterion being the tolerance of the patient. On the sixth night cascara is given, and half an hour before the bowels act the following day four to six ounces of warm olive oil are slowly injected into the rectum and retained. The evacuation is then free and painless. All patients are advised to finish their toilet with cotton-wool moistened with some mild antiseptic.

Fissure, Polypus, and Fistula

Anal Fissure.—The current I use here is the monopolar, or Oudin, current. After anaesthesia a rectal speculum is introduced, and the fissure located and "sprayed" with this current. The result is a dehydrated eschar, which is left *in situ*. The immediate result is cessation of pain, due to the sealing of the exposed nerve endings. Three to four days after the operation the anus is gently swabbed out with a mild antiseptic. The patient is allowed up on the day after the operation.

One patient, C. C., a man aged 27, was suffering from tuberculous anal fissure, following several operations for fistula-in-ano, in 1929. A diathermy operation was performed in May, 1931, and by August of the same year the fissure had healed soundly.

Anal Polypi.—Perianal anaesthesia is administered, and the polypus is brought down. The base, if higher than the line of perianal anaesthesia, is injected with local anaesthetic. A pair of curved artery forceps are applied to the base of the pedicle, it being remembered that the pedicle has been stretched. Allowance should therefore be made for this when applying the forceps, otherwise they will be applied too closely. The polypus distal to the forceps is severed with the cutting current. The electrode is then applied to the point of the forceps, and the coagulating current turned on until a zone appears proximal to the forceps. If the base is very broad I usually apply a catgut ligature, but in the case of small polypi this may well be dispensed with. I should like here to sound a note of warning. If the polypus is above the line of peritoneal reflection the operator should remember that the ultimate slough will extend beyond the coagulated area visible at the time of operation. If too heavy or too prolonged a current is used a perforation into the peritoneal cavity may result, with disastrous consequences. In most cases the patient can be discharged in a week or ten days. The subsequent scar at the end of six to eight weeks is soft and pliable, and hardly discernible. I have had no recurrences up to date.

Fistula-in-Ano.—The results in these cases have been particularly gratifying. The technique I adopt here is, as far as I know, entirely my own. Local anaesthesia is administered as usual. A soft phosphor bronze wire about three inches in length is used as the positive electrode. The wire is introduced down the sinus in its entire length until a finger in the rectum feels the end of the wire just under the rectal mucous membrane. The wire is then withdrawn about a quarter of an inch. A medium coagulation current is then passed until the skin shows signs of coagulation. With the current still on the wire is withdrawn, and a dry dressing is applied. The patient is allowed up on the following day, the bowels being kept constipated in the usual manner. The almost instantaneous cessation of pain is the most gratifying feature of this operation. There is a slight amount of discharge from the sinus for about three days, but within a week this has entirely ceased.

A. B., a male, gave a history of tuberculous fistula-in-ano for eighteen months. He had had various operations without any success. Examination showed a perianal fistula. A diathermy operation was performed. Three months afterwards the patient stated, in reply to a "follow-up" letter, that he had had no recurrence of any symptoms, and that all discharge had ceased.

HAEMORRHOIDS

Anaesthesia is given as usual. Some gauze is then rolled into a pear-shaped mass and inserted up the anus beyond the pile-bearing area. Traction is then made on it. This has the effect of everting the pile-bearing area. A needle, bent to form a small arc of a large circle, is used as the electrode. Each pile is punctured at the distal end, and the electrode is inserted for a distance of about half an inch. Coagulation current is then turned on until an area of coagulation appears at the entrance. About the same time the haemorrhoid proceeds to "boil." The electrode is removed with the current still on. In cases of thrombosed piles the technique is somewhat different. The ordinary straight needle is used. The pile is opened with a cutting current, and the clot evacuated by sponging. A ball electrode is then used, and the interior of the pile is thoroughly sprayed with the coagulating current. I do not now insert any sutures into the wound at all. Any anal tags are excised with the cutting current. No morphine suppositories are used, and the wound is dressed with a pyramidal dressing. The time occupied for each pile is approximately ten seconds. With this method there is practically no post-operative oedema, while subsequent pain is in most cases absent. I now allow patients to get up on the fifth day, and they are discharged on the seventh day, though I consider this is erring on the generous side. About a month afterwards the site of the operation shows practically no indication of any scarring to the naked eye. The amount of haemorrhage, except in one case of a "bleeder" (reported below), was about half a teaspoonful of blood, in some instances even less.

Case Record.—The following case, for the notes of which I am indebted to Dr. Storrs, is of some interest, and is therefore reported in full.

J. S., aged 37, gave no family history of bleeding. He served in the Army in 1916, and apparently had a post-traumatic haemarthrosis of the knee, which was tapped. Three and a half years ago he had a dental extraction, and bleeding was so severe that the patient nearly died. Two years ago he again had haemarthrosis, this time for no apparent reason; the knee was not tapped. A year ago the same knee was affected, and also the left shoulder. Nine months ago the right wrist became swollen while he was sawing some wood. Since the operation for haemorrhoids the right elbow became swollen in the absence of any history of injury—typical haemarthrosis. As regards the history of haemorrhoids, the patient stated that he had had bleeding per rectum for four years, and had lost about three-quarters of a pint a day. For some time he had been on intramuscular injections of collosol calcium. In view of the history of bleeding I was rather chary about risking a blood examination. When I saw him the patient was so anaemic, the bleeding having now become practically a continuous ooze, that it was obvious that unless something was attempted a fatal termination was inevitable.

On July 22nd, 1932, under general anaesthesia, a proctoscope was introduced. A pile on the posterior and lateral rectal surface, about half an inch from the anus, was seen to be continually oozing. This was coagulated with a strong current. Even then great difficulty was experienced in stopping the oozing. A large mass of piles on the right side was punctured, and a heavy coagulation current turned on. Once again extreme difficulty was experienced in stopping the bleeding. On the left side one puncture was made, which, however, did not result in bleeding. At the beginning of the operation the patient was given 1/2 c.cm. of collosol calcium intramuscularly. Bleeding being uncontrollable by this means, 2 c.cm. of haemoplastin was given intramuscularly, but blood was still seen to be clotting feebly. After about one and a half hours haemostasis was at last obtained; 2 c.cm. of haemoplastin was mixed with some vaseline, and the prolapsed mass was freely painted over with this. A small piece of gauze was also covered with it. A pyramidal dressing was applied, together with firm pressure. Although a full coagulating current was used, the operation took one and a half hours, and necessitated the measures indicated above. I felt some anxiety until the sloughs had separated, as I feared that haemorrhage might recur violently; but apart from a few streaks of blood there was no haemorrhage. The patient was discharged after a fortnight. He allowed his bowels to become constipated for three days after discharge, with the result that on evacuation he lost about a teaspoonful of blood. I have examined him since, expecting that, with the heavy coagulation and the consequent destruction of tissues, a considerable amount of scarring would result, but it was gratifying to see that the amount of scarring was no more than occurs in an ordinary case of haemorrhoids after excision and ligature. Up to date the patient has had no more haemorrhage.

CONCLUSION

I have been so struck with the ease of operation, and the painless and shortened convalescence of these various conditions treated by diathermy, that I am emboldened to write this short preliminary paper. In this region of the body I now never consider using the older scalpel method. It must be realized, however, as Wyeth points out, that the surgeon using diathermy has to learn a new technique, and that each patient must be considered separately—the operator must understand his machine and his own limitations.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

CONGENITAL GLOTTIC STENOSIS

Congenital glottic stenosis is a rare condition. Sir StClair Thomson, in his textbook, mentions twenty-two recorded cases.

A boy, aged 5, was referred to me on February 27th, 1933, by Dr. Nancy Bryce on account of a hoarse voice and stridor. His mother said that soon after his birth his cry was noticed to resemble that of a kitten; he had always had a hoarse voice and noisy breathing. The hoarseness was more marked during a cold, but there had never been aphonia. The noisy respiration increased on exertion. He was a bottle-fed baby, and had had convulsions at fifteen months, when he had had nine fits in one day. Two years and nine months ago he had had what the mother described as coma from 8.30 a.m. until 4 p.m., when he had completely regained consciousness and had appeared normal. He was stated to have had influenza and bronchitis, and, last year, measles and chicken-pox.

The patient was admitted to the Torbay Hospital on March 20th, 1933, and on the following day a direct laryngoscopy under general anaesthesia revealed a web attached to the margins of the anterior halves of the vocal cords and occupying the intervening space. There was a suggestion of translucency about the web, and the colour was the same as that of the cords. The posterior margin was crescentic. A Paterson's laryngeal forceps was inserted closed, in order to ascertain the tension of the web, but it completely occluded the glottis and had to be withdrawn. On account of the slightness of the patient's symptoms, of the knowledge that these congenital webs are thick, wedge-shaped masses of tissue, and of the doubtful value of operative attempts at removal, I decided to leave the condition untreated. A general examination by Dr. J. M. Jarvie elicited a faint localized systolic bruit in the fourth intercostal space just within the nipple line, and an inspiratory wheeze over the upper part of the left lung. The patient has stridor, chiefly inspiratory, but after moderate exertion there is marked inspiratory and expiratory stridor.

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RECURRENT RENAL CALCULI

The following case may be worth recording in association with the case described by Mr. McAdam Eccles in the *Journal* of July 15th (p. 102).

A lady, aged 61, who had lived much in India, had had attacks of renal colic for the previous ten years, sometimes on the left and sometimes on the right side, and in 1930 she passed a stone. In 1931 stones were visible in the radiograms of both kidneys, and Dr. H. L. Ormerod and I regarded operation as imperative owing to right-sided pyonephrosis with rigors. Since that time she has had altogether four nephrolithotomies on the right side and two on the left, guided both before and after operation by *x*-ray photographs: *Right.*—April 14th and August 11th, 1931; February 8th, 1932; and January 11th, 1933. *Left.*—May 5th, 1931, and January 27th, 1933. No cystin crystals were detected microscopically.

On each occasion the urine was foul. The kidney was washed out thoroughly with the patient in the inverted position and a tube inserted for subsequent flushing. At one time the urinary output was only five ounces daily for a few days. All the usual urinary antiseptics were given, but the urine remained alkaline and foul throughout. In January, 1933, after the bilateral operations, active yeast and glucose were injected into both kidneys after the daily flushing. This experiment, perhaps unique, was successful, and the urine became strongly acid for at least two months. As a control specimens of the foul urine were put out daily and yeast and glucose added. By each evening the specimens had become acid, had lost the foul odour, and had the smell of fresh beer; next morning the smell was that of stale beer in an acid specimen.

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Reviews

THE ADOLESCENT GIRL

The value of *Case Studies of Normal Adolescent Girls*[1] lies in the technique of the system on which they have been investigated. This is Miss ELSIE SMITHIES's contribution to scientific psychology. There is evidently nothing she does not know about schoolgirls. Her method and her industry together—both exemplary—have perfected her original gifts of psychological insight. The technique consists of a very elaborate scheme of case-taking and record-making by a team of collaborators in and out of school. A "battery of tests" is used to work out the I.Q. Some of these are novel, as for instance the "Chicago intelligence profile." It is realized that not all need be used in every case. Reports are filed and discussed, and the diagnosis is extracted. An agreed plan of treatment is carried out by co-operation between home and school, pupil, teacher, and parents. In Miss Smithies's school, time-tables are arranged and modified to suit individual girls.

The material is provided by a "seething mass of misfits," such as are known to every educational or medical psychologist, from a big American high school. One "superior student" is reported on by way of comparison—a most instructive exercise. The rest are the usual type of neurotic manifestations, exhibitionism, voluntary retardation, etc., traced to the usual sources—parental dominance, insecurity, physical abnormality. All the causes are, of course, environmental, but the immense effect of physical conditions in infancy and childhood is strikingly brought out. The enormous importance of periodical medical examination in childhood and adolescence becomes once more apparent. "The most frequent and most baffling condition with which we have to cope" is, "with fear of misapprehension," stated to be "an inferiority complex." There is refreshingly little of the girl-boy relationship in these studies. The author insists that the physical demands of the adolescent, of whose struggles she is compassionately aware, must be balanced against the moral necessity for that repression which begets moral strength. She seems almost overwhelmed on their behalf by the confusion of modern ideas and the rush of modern life, into which girls are plunged too young and too rapidly. "Our children skip from the mental and social age of 12 almost overnight to that of 18."

Results from treatment depend, of course, on the degree of success achieved in modifying environment. "The outlook is hopeful because social and scholastic adjustment has been made before Clara has outgrown the period of adolescence"—an enormously important point. But in a case of divorced parents "the damage done to a young, impressionable child by two so-called intelligent, cultured adults has left a permanent scar."

The last chapter, summarizing experience gained, should be read before the detailed cases. It meets some possible criticisms and restores confidence in the author's objective attitude. There is nothing actually new in the book, but it offers a beaten path to psychological knowledge of adolescent girlhood, and lights it with a clear and sympathetic understanding. The author's essential sanity is proved by her concluding sentence, "Do not permit any person to brand a girl as a problem case" (italicized). The book is well printed on light, rough paper; it has a lively orange jacket and a demure dark blue binding; also an excellent bibliography. It will be useful to all who are interested in psychology, including the amateur, for whom it contains most solemn warnings. School

[1] *Case Studies of Normal Adolescent Girls.* By Elsie M. Smithies, M.A. London and New York: D. Appleton and Co. 1933. (Pp. ix + 284. 8s. 6d. net.)

medical officers would enjoy it, and puzzled parents might find solutions of their problems. It is an admirable piece of work in case-reporting and very attractively presented.

THE THYROID GLAND

The Thyroid Gland, its Chemistry and Physiology,[2] by Professor C. R. HARINGTON, can be recommended as a model for those meditating the production of a monograph. It is of moderate length, all aspects of the problem are dealt with, and yet the volume makes easy reading. This achievement is due to the fact that the author's complete familiarity with the subject has enabled him to make a judicious selection of his material. One feature of the book is the full and interesting account given of the history of the subject.

A considerable proportion of the volume is naturally devoted to the chemistry of thyroxine, a subject on which the author speaks with special authority. The manner in which thyroxine is combined in thyroid secretion is a problem of scientific interest, and also of practical importance, and the author shows that the active secretion is probably a peptide combined with thyroxine. The last chapter deals with one of the most important unsolved problems of thyroid disease—namely, the nature of the derangement of function that causes Graves's disease. Professor Harington points out that there is no direct evidence in support of the Möbius-Plummer theory that the disease is caused by an abnormal form of secretion by the thyroid, and he prefers the view that there is a quantitative and not a qualitative change in activity (thyroid diarrhoea). The cause of this hyperactivity he considers to be wholly unknown, and concludes:

> "Graves's disease constitutes the outstanding problem in connexion with the thyroid, and the present situation, in which the only practical means of handling the condition consists of a palliative surgical measure devoid of any rational basis, remains a reproach to all who are interested in the physiology of the thyroid gland."

This book presents a short and readable statement of our existing knowledge regarding the activities of the thyroid gland, and should therefore appeal to a wide circle of readers. The author also shows very clearly the problems in regard to which our information is incomplete, and for this reason the volume should act as a stimulus to further research, which is one of the main functions of a good monograph.

THE TUBERCULOUS VIRUS

Professor JEAN VALTIS has recently contributed one of a series of monographs[3] dealing with tuberculosis, edited by Professor Léon Bernard, and intended to provide the general practitioner with a conspectus of modern fact and opinion. The first part contains an account of the general properties—morphological, cultural, and pathogenic—of the tubercle bacillus, which, except for its incompleteness, calls for little comment. Differentiation of the various types is inadequately described, and the role of the bovine bacillus in the causation of human disease is largely discountenanced. The statement is made that the tubercle bacillus is killed at 70° C. in ten minutes, in spite of the fact that a temperature of 71° C. maintained for only fifteen seconds has been found in the United States sufficient for the destruction of this organism in the new short-time method of pasteurization of milk. One of the most important chapters in modern research on the tubercle bacillus—namely, the analysis of its chemical constitution and the study of the toxicity of the various fractions isolated, carried out by Anderson at Yale and by Florence Sabin in New York—receives no mention. Similarly there is no description of the serological methods of differentiation between the various types, nor of Dudley's work on the factors responsible for the precipitin reaction.

Part II is devoted to the filterable stage of the tubercle bacillus, the so-called tuberculous ultravirus; while in the third part the role of this ultravirus is considered in relation to the inheritance of tuberculosis. In these two sections there is much that the careful reader, anxious to maintain a strict adherence to facts, will be unable to follow. When the very existence of a true filterable stage in the life cycle of the tubercle bacillus is in doubt, and when attempts to complete the cycle in the laboratory by restoring the ultravirus to its original fully virulent form have been completely unsuccessful, the explanation of the epidemiology of tuberculosis in terms of inherited infection by the ultravirus is allowing imagination to run far beyond ascertained facts. The last part of the book treats of vaccination by B.C.G., the usual arguments and figures, now rendered so familiar through the exposition of Professor Calmette, being reproduced at some length.

This book is suitable for the expert alone. There is so much contentious matter, so many assumptions, and so many relatively unsupported hypotheses, that anyone not fully acquainted with the laboratory evidence could not fail to receive a wrong impression of the conclusions for which adequate evidence is available.

SURGICAL OPERATIONS

A new volume of *Bickham's Operative Surgery*[4] has been written by Dr. CALVIN MASON SMYTH. The original textbook in six volumes was completed in 1924, and this volume, the seventh, is a supplement which adds to the various sections of the original work descriptions of such new operative procedures as its author considers to be established. Dr. Smyth draws attention to the fact that the chief additions have been made to the chapters on the colon and the chest, while nothing has been added to those on the eye, ear, nose, trachea, and larynx, and but little to that on operative obstetrics. From the introductory chapters on the surgeon's relations to his work and the public we would willingly quote if space permitted: so many pertinent things are said about surgical practice, although the construction of some of the paragraphs needs grammatical revision. On one burning question the following is said: "Splitting of fees makes of life's highest calling one of life's lowliest fallings, and brings into equal condemnation everyone connected with the act." It is well said that diagnostic skill is at once the most valuable and the rarest of the surgeon's attainments, and that physiology and pathology are now of an importance in his education equal to, if not greater than, that of anatomy—a fact well known to surgeons but apparently to no one else, least of all to the anatomist. On the relations between surgeon and patient the author alleges a tendency to make them impersonal, stating that "at the present time the surgeon is doing less and less of anything but operate." Wherever this may be true it certainly deserves the condemnation he gives to it.

After reviewing all the new work on anaesthesia Dr. Smyth expresses his preference for the nitrous oxide-ether combination over all other methods of anaesthesia and

[2] *The Thyroid Gland: Its Chemistry and Physiology*. By C. R. Harington, M.A., Ph.D., F.R.S. London: H. Milford. Oxford University Press. 1933. (Pp. xiii + 222; 28 figures. 15s. net.)

[3] *Le Virus Tuberculeux*. Par Dr. Jean Valtis. (Bibliothèque de Phtisiologie.) Paris: Masson et Cie. 1933. (Pp. 242; 36 fr.)

[4] *Bickham's Operative Surgery*. By Calvin Mason Smyth, jun., B.S., M.D., F.A.C.S. Vol. vii. General index to complete works, vols. i to vii. Philadelphia and London: W. B. Saunders Company. 1933. (Pp. 849; 765 figures. 55s. net.)

analgesia in average cases. A number of new orthopaedic procedures are described, for the most part modifications only, and a new section is written on the use of fascial sutures. In commenting on radiation for breast cancer the opinion is expressed that its indiscriminate use in primary operable disease will probably be responsible for more cases of irremediable malignancy. In the chapters on thoracic surgery anaesthesia by intrapharyngeal insufflation is said to be the method of choice for transpleural operations ; there are new descriptions and illustrations of thoracoplasty, lobectomy, and of methods for exposure of the pericardium and heart. There is not much that is new recorded in regard to gastric and duodenal operations, but modifications of colostomy and of other operations on the colon and rectum are described at considerable length. Bowel transplantation of the ureters is treated in full detail, and there are many illustrations of modifications in prostatic surgery.

The volume is completed by certain gynaecological procedures, in particular cervical Caesarean section and operations on the female genital organs designed to preserve ovarian and menstrual function. The new index to the whole seven volumes occupies 211 pages, which gives an indication of the comprehensive character of the complete work. There is little that is radically new in this volume, but there are valuable additions, especially in regard to the surgery of the nervous system and the thorax ; it is well worth possessing for itself, and the author deserves congratulations on his careful selection. It is to be hoped that the custom of attaching the names of surgeons to operations and modifications will fall out of fashion some day ; it may be necessary to record them somewhere in a textbook, but the author who makes a stand against these labels would deserve the gratitude of students, graduate and undergraduate alike.

RESEARCH ON THE CIRCULATION

Professor Nordmann's monograph on Circulatory Derangements and Pathological Histology[5] is one of a series now being issued under the editorship of Professor Bruno Kisch of Cologne, dealing with the results of experimental research on the circulation. Of the thirteen volumes in contemplation, five have already been published. The task undertaken by Professor Nordmann has been to show to what extent the local histological picture of the various lesions depends on derangement of the general and local circulation as a primary or secondary factor. Of particular interest is his description of the mechanism of changes in the capillary circulation. Starting from the condition in the normal inactive organ, in which the distension of the arterioles, capillaries, and venules is moderate in degree, a change to a condition of fluxional or active hyperaemia occurs in active organs, the channels increasing in width and the blood stream becoming more rapid. According to the customary classification this active hyperaemia is placed in contrast with passive hyperaemia due to obstruction on the venous side. The author, following Ricker, shows that there is a third form of hyperaemia, independent of changes in the general circulation or reflux from the veins, and due to spasm of the arterioles. The capillaries, as a result of the spasm, suffer a loss of tone or irritability, and dilatation with slowing of the blood stream follows. To this form Ricker has given the name " peristatic hyperaemia " from its tendency in severe cases to end in stasis.

Other pathological changes in the capillary circulation referred to by the author include variations in the irritability of the capillary wall in various conditions and special changes observed in cases of vaso-neurosis and derangements of the general circulation. The histological part of the book is concerned with the application of the above observations in the study of the various tissue lesions—namely, oedema, suppuration, haemorrhage, necrosis, granulation-tissue formation, chronic inflammation, tumour formation—and in connexion with the special diseases of arteries, veins, and lymphatics. The book contains descriptions of the methods used in the microscopical examination of the local circulation in living men and animals, and concludes with a good bibliography of the subject.

[5] *Kreislaufstörungen und Pathologische Histologie.* Von Professor Dr. Martin Nordmann. *Ergebnisse der Kreislaufforschung.* Band IV. Dresden und Leipzig: Th. Steinkopff. 1933. (Pp. 174 ; 14 figures. Geh. RM.13.80 ; Geb. RM.15.)

Notes on Books

Any general practitioner or physiotherapist who reads *The Adjustment of Muscular Habits,*[6] by Colonel James McConnel, will experience a renewal of interest in the treatment of patients with faulty muscular habits of posture or movement. He will wish that such a practical aspect of the activities of voluntary muscles had been presented to him in student days, either during anatomy classes or later in the orthopaedic departments at hospital. The author's original and constructive treatment will commend itself by its simplicity and effectiveness, and its definite expectation of success, even in elderly patients. By careful analysis of the mechanism of the functional defect, the patient is made to realize how it occurs, and is helped to reproduce the correct movement, at first under special conditions and later incorporated in the normal movements of everyday life. The enormous advantage of securing the patient's co-operation through his intellectual grasp of the aim in view will be obvious on comparing this method of treatment with any system of remedial exercises in which the patient is treated as a passive automaton. Indeed, this is a book that can be thoroughly recommended, and should find its place on the reference shelves of many medical practitioners.

The importance of specificity in biological reactions is attested by the recent monograph by Sir Frederick Gowland Hopkins. Little light, however, is shed on the subject by the recent book of Martiny, Prétet, and Berné, Biological Specificity.[7] After a physico-chemical introduction, the value of which can be judged by the statement " nous admettons que l'atome d'hydrogène est constitué par 1,846 électrons," the authors consider that the frequency of vibration of the antigen is a harmonic of that of the antibody the molecules of antigen polymerize by resonance. No references are given ; the names of authors are misspelt—" Dakin and Dudelly, Heidelberg and Avery, Möller and Tomertik " ; there is no subject index.

The proceedings of the eighth meeting of the International Commission on Illumination,[8] which was held at Cambridge in 1931, have now been published under the direction of the Central Bureau at the National Physical Laboratory, Teddington. In addition to a record of the various business transactions, the volume contains contributions relating to a great diversity of topics, which include street lighting, the use of coloured glass for signals, ultra-violet illumination, the lighting of factories, schools, and cinemas, and photometrical considerations. English, French, and German are the languages used. Attention is also drawn to airport and aircraft lighting, and to the work of national commissions in respect of such subjects as the lights to be carried by automobiles. The result is a volume of information about the present position of a branch of technical research in which great advances have been made in recent years.

[6] *The Adjustment of Muscular Habits.* By Lieut.-Colonel J. K. McConnel, D.S.O., *M.C.* With a foreword by Professor W. E. le Gros Clark, D.Sc., F.R.C.S. London: H. K. Lewis and Co., Ltd. 1933. (Pp. xi + 130 ; 8 figures. 4s. 6d. net.)

[7] *La Spécificité Biologique.* Par M. Martiny, H. Prétet, et A. Berné. (Anaphylaxie—immunité—hérédité.) Paris: Masson et Cie. (Pp. vi + 208. 35 fr.)

[8] *Commission Internationale de l'Eclairage.* Huitième session. London: Cambridge University Press. 1933. (Pp. 694 ; illustrated. 20s. net.)

Preparations and Appliances

HEAD CLAMP FOR BUCCAL OPERATIONS

Dr. C. BOWDLER HENRY (London) writes: Messrs. Newton and Wright have made for me a head clamp suitable for attaching to the ordinary type of operating table in common use, and because of its portability and the ease with which it may be dismantled, capable of forming part of a surgeon's equipment. It was primarily devised to maintain the head in a fixed position during the filming of some operations in the mouth, but its convenience in enabling me to dispense with sandbags, and in saving me from the irritation of the assistant's retractor gradually pulling the site of operation out of the field of vision, has been so great as to make it indispensable to me.

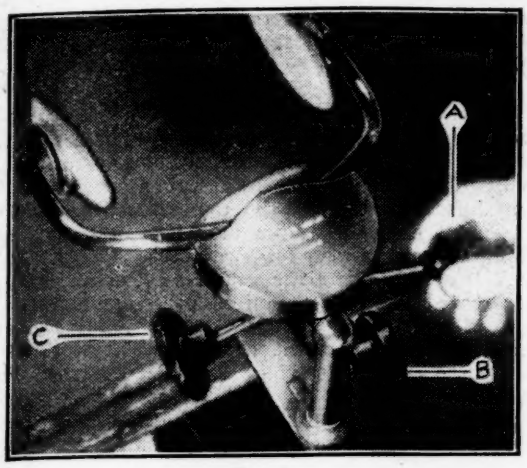


FIG. 1.

The jaws (Fig. 1), which are approximated by the knob A, are arranged so that the head is clamped by the oval rubber-padded plates across the temples. They should be set at a height above the table so that the horizontal bar round which they rotate is in line with the axis of the spine. The vertical height is locked by tightening knob B, which grips the vertical stem. When knob C is loose the head may be rotated with complete freedom, and is locked in any desired position by tightening this knob. The clamping device for fixing the apparatus to the table is also adjustable to fit different widths. Fig. 2 shows the clamp in use during the administration of an anaesthetic.

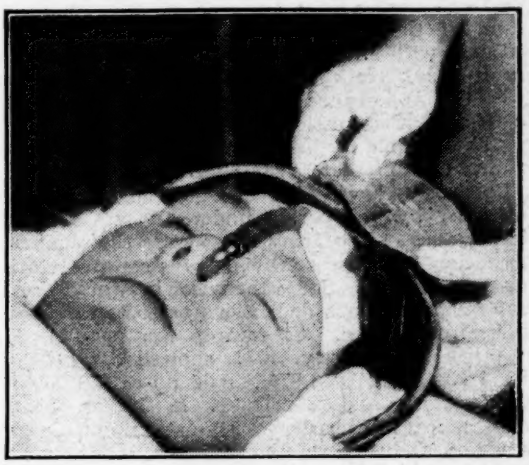
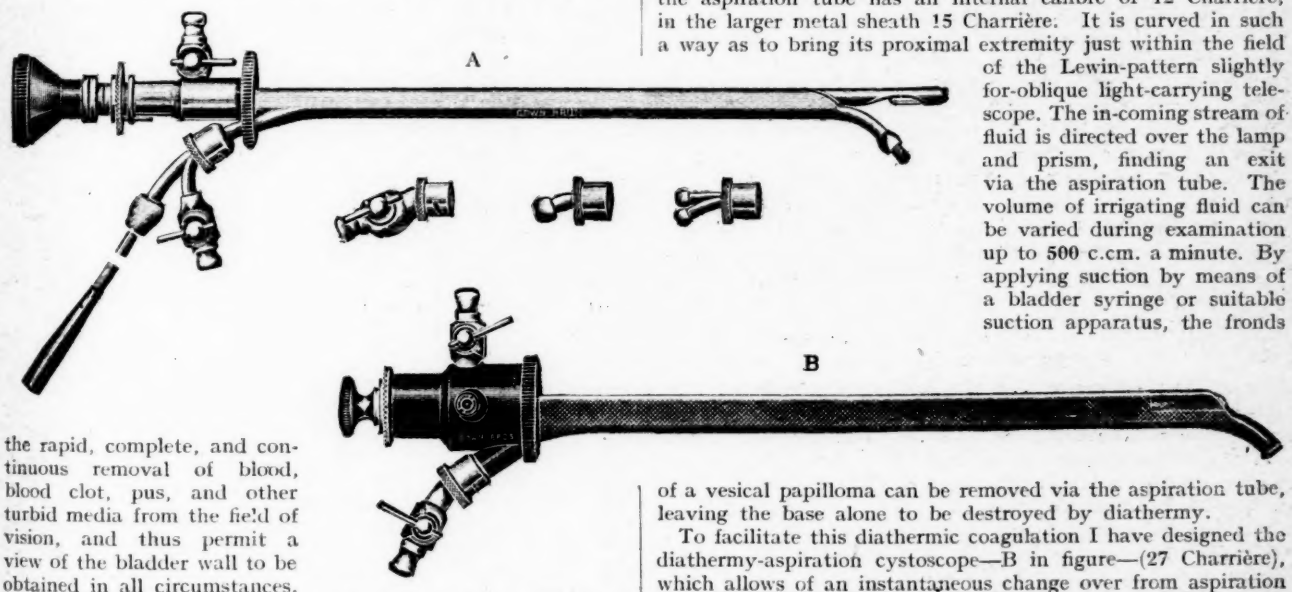


FIG. 2.

These illustrations are reproductions of enlargements from my film "Limited Alveolectomy," in the Kodak Medical Library.

A NEW ASPIRATION CYSTOSCOPE

Mr. KENNETH HERITAGE, M.S., F.R.C.S., writes from the London Hospital: The cystoscopic unit shown in the accompanying figures is a modification of the Morgenstern instrument, and is designed for two specific purposes: (1) To allow the rapid, complete, and continuous removal of blood, blood clot, pus, and other turbid media from the field of vision, and thus permit a view of the bladder wall to be obtained in all circumstances. Small vesical calculi, or fragments of a crushed stone, can also be removed under direct vision. (2) The *suction* removal of vesical papillomata.



The cystoscope also forms a convenient operating instrument, since through the aspirating tube can be passed diathermy electrodes, ureteric catheters, dilators, scissors, etc. The metal sheath marked A in the figure is made in two sizes, 27 and 24 Charrière. The tube is oval, having flattened sides, with a working length of 22 cm. With the telescope removed and the obturator *in situ* the instrument is easily introduced. If desired it can be passed over a rubber or gum-elastic guide threaded through the aspiration tube. In the smaller metal and the diathermy instrument the aspiration tube has an internal calibre of 12 Charrière, in the larger metal sheath 15 Charrière. It is curved in such a way as to bring its proximal extremity just within the field of the Lewin-pattern slightly for-oblique light-carrying telescope. The in-coming stream of fluid is directed over the lamp and prism, finding an exit via the aspiration tube. The volume of irrigating fluid can be varied during examination up to 500 c.cm. a minute. By applying suction by means of a bladder syringe or suitable suction apparatus, the fronds of a vesical papilloma can be removed via the aspiration tube, leaving the base alone to be destroyed by diathermy.

To facilitate this diathermic coagulation I have designed the diathermy-aspiration cystoscope—B in figure—(27 Charrière), which allows of an instantaneous change over from aspiration to diathermy, and vice versa. By this procedure the extent and nature of a bladder growth can be ascertained, and if necessary the aspirated material subjected to section. The complete endoscopic removal of large or multiple papillomata is thus carried out at one sitting.

The instrument was made for me by Messrs. Down Bros., of 21–23, St. Thomas's Street, S.E.

PROGRESS OF PUBLIC HEALTH IN INDIA

The amount of work entailed in the compilation each year of the public health conditions of a population of over 350 millions, nearly one-fifth of the total human race, and of the public health activities throughout a subcontinent with an area nearly half as large as Europe, renders it inevitable that there should be considerable delay in the appearance of each annual report of the Public Health Commissioner with the Government of India. The volume for 1930, Part I, which was received earlier in the present year, has been prepared by Lieut.-Colonel A. J. H. Russell, Officiating Public Health Commissioner for the period under review. He stresses the importance of bearing in mind the immensities of population and areas when perusing the statistical conclusions recorded, for otherwise it would be easy to reach very erroneous deductions as to the present and future health outlook. As regards the population, the census taken in February, 1931, showed a total population for India of 352,986,876, made up of 271,749,312 in British territory and 81,237,564 in Indian States—a decennial increase of nearly twenty-five millions in British territory and of just over nine millions in Indian States. These figures are admittedly incomplete, for in some areas the census could not be adequately accomplished. Excluding the Province of Delhi, the average populations per square mile were: 648 in Bengal ; 423 in the United Provinces ; 409 in Bihar and Orissa ; 325 in the Presidency of Madras ; 223 in Assam ; 211 in the Punjab ; and 94 in Burma. The rainfall during 1930 was approximately normal and well distributed.

"Febrile" Diseases, including Malaria

In that year 58.4 per cent. of the total mortality from all causes was attributable to "febrile" diseases ; registration difficulties in many districts render it impossible to secure a more precise differentiation. The statistics for cholera, small-pox, and plague have now reached a fair standard of accuracy ; the respective figures for the year are given as 5.2, 1.1, and 0.34 per cent. of the total mortality. The urban death rate from small-pox was more than double the rural death rate from this cause, while the death rates from dysentery and diarrhoea were nearly three times as high in urban districts as in the country tracts, and from respiratory diseases the death rate in towns was nearly five times higher than in the villages. Conversely, the "fevers" death rate in urban areas was only about half that in rural areas. Colonel Russell calls attention to the ravages of malaria. For India as a whole, malarial cases constitute about 16 per cent. of the total attendances at hospitals and dispensaries, while provincial rates range from 26.5 per cent. in Bengal to 6.8 per cent. in Madras. It should be borne in mind that, since these figures are based only on the numbers of those who seek treatment, they are far below the actual figures of incidence ; they indicate, however, the extent of one of the most disastrous causes of human distress and economic loss in India as a whole. A summary is given in the report of the various anti-malarial campaigns in the different areas. These include spleen and parasite surveys, the treatment of parasite breeding places, improvement in drainage, the installation of temporary dispensaries, schemes of quinine distribution, and intensive propaganda. About 211,000 pounds of quinine are consumed annually in India, a quantity amounting to about one-sixth of the total production in the world ; about 85,000 pounds come from Government sources.

Enteric fevers are much more prevalent in India than the recorded figures indicate. Many authorities hold, with some justification, that a large proportion of the population is affected in childhood, and thereby acquires some measure of immunity. Influenza was much less prevalent in 1930 than formerly. Relapsing fever, now known to have a much wider distribution in India than hitherto suspected, was conspicuously rare in Assam, Burma, and Bihar and Orissa—an epidemiological peculiarity which invites attention. The kala-azar commission has continued its investigations, but has still failed to establish proof that *P. argentipes* is the transmitting agent of the parasite. Respiratory diseases have become an important factor in the mortality rates of a considerable number of the provinces of India ; housing conditions do not seem to be so much concerned in this as had been thought.

Tuberculosis, Cholera, and Small-pox

Tuberculosis appears to be increasing, and there is little doubt that the populations of the large towns, and especially of the larger industrial urban areas, are very severely infected. It must be remembered in this connexion that the disease is not notifiable in India, except in the municipalities of a few provinces. Colonel Russell remarks that there is little doubt of the necessity for a co-ordinated and well-organized campaign against this scourge. There is a general lack of hospital and sanatorium beds throughout the country. The work of the King George's Thanksgiving Anti-Tuberculosis Fund, which was inaugurated in 1930, is increasing steadily, despite the prevailing financial stringency. As regards cholera, Sir Leonard Rogers's predictions for 1930 proved remarkably correct for Bihar, there being no change in the incidence, although the climatic and other conditions were favourable for epidemic outbreaks. The Punjab was also relatively free, as were Burma and the north-western and western parts of India, but severe epidemics were experienced in the Central Provinces and Bombay. Precautions against the spread of this disease by pilgrims were effective in many areas, but the relative absence of cases in some parts resulted in the pilgrims declining to permit inoculation. Colonel Russell does not consider, however, that compulsion is desirable. Interesting details are given of the various ways in which the anti-cholera campaign is being carried out in varying circumstances. During 1930 the incidence of plague was the lowest recorded since the introduction of the disease in 1896 into British India. The mortality was only one-third of that in 1929, and the decrease in incidence was perceptible in every province. The forecast of Sir Leonard Rogers with regard to small-pox was not entirely fulfilled, there being severe epidemics in the Presidency of Bombay and in the Central Provinces, with reductions in the incidence elsewhere. Further evidence was obtained of the efficacy of vaccination. Yet there was a decrease in the number of vaccination operations, particularly primary ones, all parts of India being alike in this respect. No cases of post-vaccinial encephalitis were recorded. The lymph used is the glycerinated variety diluted to the maximum extent ; the cold storage arrangements worked satisfactorily. In a summary of leprosy work attention is drawn to the value of surveys. These have helped to confirm the idea that this disease is much more prevalent in India than the census figures reveal. A highly infected police division is selected. The villages are visited, treatment centres are opened, and lectures and demonstrations are given. As soon as confidence has been established, patients pour in for treatment, and are enumerated. The figure thus obtained is always much higher than the census figure, and explanations of variations in local incidence rates are forthcoming. The disease is found to be more prevalent where moist climatic conditions prevail; where the soil is poor, causing vegetables and fodder to languish and cereal crops to fail ; and where, in the absence of these foodstuffs, spoilt rice and decayed fish are consumed.

Preventive Medicine

Advance in maternity and child welfare, Colonel Russell states, has been extremely slow, the atmosphere of political disturbances and economic depression having retarded work in this connexion. Women have now, however, begun to enter public life, and their interest will doubtless

be focused on the problems which concern them particularly. The increase of literacy among women will result in the provision of more workers in the various appointments which are opening, and in a more intense demand for social services. The number of medical women is increasing almost more rapidly than the country can absorb them. The need for medical services is far from being met, but this need and the ability to conduct the services do not go hand in hand. Most of those who have qualified so far have engaged in curative work, the pressing necessity of the time, but it is to be hoped that the claims of preventive work and of the public health services of all kinds will soon receive more consideration. In this respect help should be forthcoming from the new Hygiene Institute in Calcutta, and from the maternity and child welfare bureau of the amalgamated Lady Chelmsford League and the India Red Cross Society. Since the great majority of births take place in villages where hospitals do not exist, the training of indigenous midwives (*dais*) continues to be undertaken throughout the country, assisted by the Victoria Memorial Scholarships Fund. Students are freely obtained, the difficulty being to ensure proper teaching for them and adequate subsequent supervision. The maternal mortality rate remains very high, in consequence of such prevailing complications as eclampsia, osteomalacia, and anaemia. The pressing claims of general sanitation, the need for vigilance in the control of epidemics, and the money required for pure water supplies and proper drainage systems are all apt to overshadow the claims of work among children. The Public Health Commissioner has practically no such control as the Ministry of Health for England and Wales. Yet it remains true that the infant mortality of a country is the most sensitive index to its sanitary progress. Great efforts are being made by voluntary societies, such as the India Red Cross Society, but local governments are still too apathetic in many cases. The larger municipalities frequently attempt too much over a wide area with an inadequate staff. There has been so far but little development of welfare work in industries, with one outstanding exception in the Jharia coalfield.

Summing up his report, which occupies 546 pages of text and statistical tables, Colonel Russell commends it as a work of reference, particularly in relation to the progress of medical research in India, the analyses of infant mortality rates, and the work associated with maternity and child welfare. These, he thinks, will astonish those who do not realize the magnitude of the task confronting public health departments in India, and who are not aware of the difficulties under which preventive medicine is being developed and conducted. He admits that the practice of basing birth and death rates on the figures secured at the previous census—sometimes many years anterior—has proved fallacious in the past. Hereafter these rates will be based on estimated population figures. Colonel Russell insists that, before any great advancement in public health can be attained in India, preventive medicine must be carried to the rural communities, since the vast majority of the people still live a rural life, untouched by urban influences. This implies a spread of education on a biological basis. Training colleges, he adds, must be equipped to give instruction relating to the simple facts of hygiene and health, and there must be a keener understanding of this necessity on the part of those who frame budgets, and who decide the extent and nature of public expenditure.

HEALTH OF THE ARMIES

The second volume of the annual report for 1931 of the Public Health Commissioner with the Government of India, which has recently been received, deals with the health of the British and Indian armies in that country. As compared with the previous year, there was an increase in the morbidity rate, in spite of a definite decrease in the incidence of malaria and sandfly fever. This rise was due to an outbreak of mild influenza, and to operations in connexion with the rebellion in Burma, when, although there were no casualties, the sick rate increased from 618.1 to 746.2 per 1,000. The average number constantly sick in hospital was 1,619.95, or 29.01 per 1,000 of the strength, compared with 1,622.03, or 29.26 per 1,000 in 1930. The two diseases chiefly responsible were gonorrhoea (242.54) and malaria (158.04). The actual loss to the army in India in working days was 591,282 due to sick in hospital and 442,325 due to sick in barracks, making a total of 1,033,607 days, compared with 993,656 in the previous year. There was a slight increase in the incidence of dengue, attributable to an unusually severe outbreak in Calcutta, where the number of cases was nearly doubled.

In India as a whole the variation in the incidence of sandfly fever has shown little change over a series of years. When individual stations or small areas are considered, very remarkable differences come to light, but, with the exception of the effect of the presence or absence of "salted" cases, there is very scanty information available as to the causes of these variations. Climatic conditions have been suspected of some aetiological significance, but a study of the monthly figures of incidence indicated no correlation with the rainfall or the mere relative humidity; a mean 8 a.m. temperature over 70° F. and under 90° F. was associated, however, with an increased incidence of the disease. It is concluded that monthly figures are too wide for the study of a disease with such a short incubation period and of such brief duration. The question is further complicated by the admitted difficulty of diagnosis, particularly of cases occurring at the beginning or end of the epidemic season; they are often confused with malaria or influenza. No really effective methods of prevention have yet been devised. Repellants, such as P.C. oil, are of limited value owing to their evanescence, while sandfly nets are too airless for use in a tropical climate. Spraying with insecticides will reduce incidence, especially in small barrack rooms, the occupants of which have no night duties to perform. This is, however, an expensive measure, and not applicable under field conditions.

An inquiry into the causes of pyrexia of unknown origin lasting for seven days or longer gave little information other than that a certain proportion of these cases were of intestinal origin. There seemed to be a slight progressive decrease in the incidence and severity of diseases of the enteric group as regards the British troops, though the figures for the Indian troops were less satisfactory than in the two previous years, and this in spite of the introduction of the revised method of prophylactic inoculation—namely, two doses of T.A.B. vaccine, 0.5 c.cm. and 1 c.cm. respectively, repeated at intervals of eighteen months. It is remarked that there is as yet no infallible method of diagnosis, and the opinion of the discriminating clinician must still remain the decisive factor in doubtful cases. In epidemic form these diseases have almost ceased to exist in the case of the troops, although enteric fevers are rife among the civil population. This is obviously the source of the sporadic cases, and, until the resistance of the individual can be rendered invincible, the occurrence of such cases remains inevitable. Dysentery admissions increased during the year under review, although there was a fall as regards diarrhoea and colitis. On the whole the cases were of a mild type, and responded readily to treatment; polyvalent high-potency (double strength) anti-dysenteric serum Hoechst was tried with good results, and arrangements were made to maintain a stock of this serum. In most instances the infection was traceable to the civil population, and not to the existence of carrier cases. Anti-malaria surveys were prosecuted with good results. Several stations co-operated closely with the local authorities in preventive measures, including the provision of dispensaries and the organizing of village anti-malaria gangs. After a series of years showing a steady fall in the incidence of venereal diseases, there was a slight increase in 1931. The value of preventive methods, including educational propaganda, has been fully demonstrated during the years 1927 to 1931.

British Medical Journal

SATURDAY, AUGUST 19th, 1933

OCCUPATIONAL DISEASES OF THE SKIN

In devoting so much time to the subject of occupational diseases of the skin at the recent Annual Meeting, the Dermatological Section displayed a proper appreciation of a very important but rather neglected subject. It will probably have been news to several to find that as many as 15,000 cases of dermatitis due to industrial causes are certified every year by the factory surgeons of Great Britain, but the burden of compensating the sufferers which has been placed on the shoulders of employers, who in their turn have transferred it (with a substantial consideration) to the insurance companies, is a very onerous one, and constitutes a real tax on industry. Those who have given attention to the subject are agreed that the problem of lessening the incidence of occupational dermatitis is one of preventive medicine rather than of therapeutics. Those workers who have once been attacked are often slow to recover, and are peculiarly liable to relapse on resuming their original occupation. They often appear to acquire a special sensitiveness to the materials among which they work, and not infrequently are ultimately compelled to change the nature of their employment—a matter of considerable difficulty to the modern worker. In this connexion it is worth mentioning that Dr. N. H. Mummery, whose experience as medical officer to the largest food-preparing firm in the country makes him specially familiar with the problems of occupational dermatitis, finds that treatment of the hands and forearms with small doses of x rays is not only efficacious in curing the dermatitis, but also raises the patient's degree of immunity against subsequent exposure. In popular parlance the x rays "harden" the skin. But prevention is the main line of attack.

Here it is impossible to exaggerate the importance of the work done by the late Sir Thomas Legge, who was senior medical inspector of factories at the Home Office for about thirty years, and by his successor, Dr. John C. Bridge, who contributed a most interesting paper to the discussion at Dublin. From 1907 onwards a constant stream of official literature has emanated from the Home Office with a view to guiding and compelling employers to take the necessary measures for the prevention of industrial dermatitis. And it should be added that in most instances the employers have been only too willing to do all in their power to the same end. The counsel of perfection in the prevention of dermatitis would appear to be the avoidance of all contact with the irritating substance by means of gloves, but this is in most cases impossible, certainly in all the food trades, which produce a very large proportion of the cases. Gloves are only employed in the presence of liquids possessing real corrosive power, such as strong acids or alkalis. In some instances protection can be afforded by the use of an emollient, especially when the skin is exposed to the action of defatting agents, such as alcohol, ether, turpentine, etc. When the hands are exposed to oil continuously, as in many branches of engineering, a peculiar acneiform dermatitis is often caused, which becomes, in many individuals, complicated by chronic furunculosis. This is due to the blocking of the sebaceous glands by grease and dirt. For the removal of such matter Dakin's solution, the basis of which is chlorinated lime and sodium bicarbonate, is recommended by Dr. Bridge. In the vast majority of cases, however, the chief precautionary measures consist in simple cleanliness. But the attainment of this is not so easy as it sounds. Soap and water themselves display distinctly irritating properties when used to excess or with the energy which is necessary when substances such as dough or sugar are allowed time to form a closely adherent layer upon the skin. It is most essential that the cleansing of the skin should be easy, and consequently the contaminating substances should not be allowed to remain any longer than is avoidable before removal. For this reason regulations have been made for the provision of proper supplies of water in all factories for the use of the workers. Many employers have gone further in this direction than the Home Office regulations actually insist upon, and special types of lavatory basin have been designed for use in factories and to be placed in close proximity to the actual site of the operations where the workers come into contact with adhesive materials. As a general rule it may be said that the larger the organization the more advanced are the measures taken for the protection of the workers. It is the small and struggling concern, where every penny is a consideration to the hard-pressed owner, which is likely to scamp its duty.

One important aspect of the prevention of industrial dermatitis is the selection of the personnel to be employed. Here, of course, the employer must act alone: Government cannot select his workers for him. But already most large employers insist on a preliminary medical examination of all persons before engagement, and in those occupations where dermatitis is apt to occur the condition of the skin is naturally scrutinized very closely. Not only should the hands and forearms be examined, but the skin of the whole body. Any person suffering from any skin eruption or any cutaneous abnormality must be excluded. In particular, any degree, however slight, of ichthyosis is found to predispose towards the development of dermatitis, and it is also found advisable to refuse the services of those who possess abnormally greasy skins or who tend to sweat unduly. Regular and frequent medical inspection of the workers is also to be practised, for, if detected in its earliest stages, dermatitis is far more amenable to treatment than if allowed to develop unhindered. It has been recommended that all candidates for employment in a trade in which dermatitis is likely to occur should undergo a preliminary test for sensitiveness towards the materials used. This,

however, is quite impracticable, nor would it prevent those numerous and rather puzzling cases in which individuals who have long remained unaffected suddenly become sensitive to the substances with which they have to work. In addition to dermatitis there are other occupational diseases of the skin, some of them even more serious to the individual patient, but fortunately not so common. These have been to a very large extent satisfactorily controlled by the measures of prevention originated by the Home Office. Anthrax has been stamped out by the institution of a disinfecting station where the imported raw materials, such as wool, hair, and hides, that harbour the spores of the bacillus, are regularly dealt with. Suitable regulations have minimized the incidence of mule-spinners' cancer. In short, the history of the measures taken against industrial diseases of the skin form a creditable chapter in the development of preventive medicine in Great Britain. Other highly civilized countries—even the United States of America and Germany—still lag far behind in the work of protecting employees against these troubles.

THE TREND OF PROGRESS IN PHARMACOLOGY

The British Pharmaceutical Congress met this year in London, and as it is ten years since it last met here the chairman, Mr. C. H. Hampshire, took the opportunity to make his opening address a review of the progress made in pharmaceutical chemistry and pharmacology during the past decade. The extent of these advances is remarkable, and the direction they have taken is also interesting and significant. A very large number of important new drugs have been introduced into therapeutic use, but of these only one—namely, ephedrine—is an active principle extracted from plants. Mention may also be made of a new and important active principle in ergot whose existence has been demonstrated, but this substance has not yet been identified. On the other hand, a whole series of important animal products has been introduced into therapeutics. The most important of these are: liver extract, parathyroid hormone, the hormone of the suprarenal cortex, the hormones of the anterior lobe of the pituitary gland, and the female sex hormones. In regard to the last two it may be pointed out that, since their therapeutic application is still in the experimental stage, it will be many years before a certain estimate can be made of their value, but they will probably be found to be of great importance. The discovery of insulin falls outside the period under discussion, but ten years ago the use of this substance was still in the experimental stage, and its development as a therapeutic agent has occurred chiefly during the last decade.

Knowledge of vitamins in recent years has advanced rapidly, but mainly along chemical lines. Ten years ago they were regarded as wholly mysterious substances, whereas to-day the chemical structure of the more important vitamins is known, and the synthesis of some of them has been achieved. Advances of this nature are less sensational than are discoveries of new vitamins, but nevertheless are of great importance for the therapeutic employment of these substances. The number of new synthetic drugs that have been introduced vastly exceeds the number introduced from all other sources, and their mere mass constitutes a serious difficulty in attempting to evaluate them. The new antimalarial drugs, plasmoquine and atebrin, are the most important of all the recent products, but among the many new local anaesthetics and hypnotics there are a few which already have established themselves as superior in certain respects to any drugs previously known. Other important new groups are the pentavalent organic antimony compounds, used in tropical disease, and the trypanocidal dye Bayer 205. The alterations made in the 1932 edition of the *British Pharmacopoeia* reflect these changes equally clearly, for no fewer than sixty vegetable drugs were deleted. It is true that twenty-four of these were of local interest in the Dominions, but subtraction of these still leaves a loss of thirty-six vegetable drugs. On the other hand, a large number of new synthetic drugs were introduced.

This brief summary shows clearly that therapeutics is advancing, chiefly along certain specific lines—namely, the introduction of new synthetic compounds and the discovery of active principles of animal origin. Chemotherapeutic substances are the most important synthetic group, and the hormones are the chief drugs of animal origin. Discussing the extent of the progress made, Mr. Hampshire pointed out that therapeutics to-day is reaping practical benefits from the pioneer work carried out in the preceding generation. In regard to the direction of these advances he remarked that this should influence the training of the pharmacist of the future. "Much of the preoccupation with details of vegetable structure which has existed in the past has now become useless, and less attention should be devoted to the study of plants in order to allow for training in the knowledge of animal biology and physiology. It is clear that in the future the pharmacist may be less of a botanist and more of a biologist." This acknowledgement of the changing needs of pharmacy is of interest to the medical profession, for it comes at a time when general dissatisfaction is being voiced with methods of medical education. Many of the proposals for educational reform have resolved themselves into an endeavour to cut down the training given in the preliminary sciences, but it is important to consider such proposals in regard to the probable future needs of the practitioner. If the pharmacist needs to understand the nature of the drugs he deals with, this applies equally to the doctor. The remedies likely to be of dominant importance in the future appear to be the synthetic chemicals and the drugs manufactured by the animal body. A knowledge of chemistry is necessary if the doctor is to make an intelligent selection from the flood of synthetic remedies put at his disposal by the enterprise of the manufacturing chemist. This need is accentuated by the luxuriant imagination displayed in nomenclature, which usually results in a single compound having dozens of different proprietary

names. On the other hand, a knowledge of physiology is equally necessary to provide a basis for discrimination between possible and impossible claims made in relation to endocrine products. Apart from these special problems created by commercial enterprise, there remains the general principle that the doctor ought to understand the nature of the tools he uses. The advance of science is providing therapeutic weapons of increasing accuracy and potency, and the profession of the future should be so trained as to use them intelligently. For these reasons it is to be hoped that any changes made in the medical curriculum will not involve too great a sacrifice of attention to the fundamental sciences of chemistry and physiology.

BRONCHIECTASIS

The hopelessness of the treatment of fetid bronchiectasis has begun, perhaps rather slowly, to lead to attempts at employing the new weapons—bronchoscopy and bronchography—in elucidating the early stage of the bronchiectatic process. While it has always seemed likely that there has been a dry stage to every case, no definite proof has been obtained. In this country we have rather tended to stumble upon various signposts without full consciousness of the direction in which they are leading. Thus, though the routine use of lipiodol had led to the discovery of dry bronchiectasis by many observers, it has only recently been pointed out[1] that the haemorrhagic types are really in a minority when these dry cases are considered as a whole. Again, bronchoscopy in this country has been largely concerned with the investigation of pulmonary suppuration[2] or of suspected neoplasm, and it is striking how little is shown on the average when the bronchi of patients with haemoptysis (but no evident suppuration) are inspected. The Sauerbruch school in Germany, and in America Graham[3] of St. Louis and Eloesser[4] of San Francisco, have made valuable collective contributions towards the differentiation of the congenital from the acquired types of stenosis and of bronchiectasis. The anatomical relation of the left duct of Cuvier to the left bronchus is said to account for the prevalence of the congenital type in the left lower lobe. Microscopical distinctions have been described between the acquired and congenital forms, and these have become susceptible of confirmation since lobectomy has been more frequently performed. Single congenital cysts lined with ciliated epithelium, and congenital cystic lung, termed by Grawitz "bronchiectasis universalis," are extreme results of the same condition. The single cysts often produce severe symptoms, notably haemoptysis, and they have been successfully excised on many occasions. Grawitz's type forms the commonest indication for thoracoplasty, and gives the best likelihood of a successful result since contralateral spread appears to be very slow. "Bronchial stenosis," says Eloesser, "has not had the attention it merits from its importance in the explanation of frequent yet obscure clinical phenomena and pathologic pictures." He goes on to give a long list of causes of the acquired form of compression stenosis, isolated examples of which are familiar to everyone. Following an atelectatic or pneumonic condition in children or young adults there is usually a period which may be from a few months to years before the classical signs of bronchiectasis develop—that is, before a bronchial dilatation which has occurred at some stage during this period has become infected. It is to diagnosis and treatment during this period and to the prevention of subsequent sepsis that all our attention should be directed. Of vital importance is the comparatively recent knowledge of the relation between disease of the nasal sinuses and pulmonary suppuration. As Ballon (quoted by Graham) has stressed, lymphatic absorption from the antrum and frontal sinus is by way of the submaxillary and internal jugular nodes to the lymph ducts, the great veins, the right heart, and the lungs. Graham and his fellow-workers devote eleven pages to a detailed account of this feature alone, referring to many cases (out of their total of 182) in which the discovery of this relation has directed treatment. While many writers have described the effects of various surgical procedures, the present need is for more detailed accounts of the type of spread and the prognosis of early cases, so that it may be understood, and described to the patient or his doctor, exactly where the alternative to radical treatment will lead him.

[1] Wall, Cecil, and Hoyle, J. C.: *British Medical Journal*, 1933, i, 597.
[2] Morlock, H. V., and Pinchin, Scott: Ibid., 1932, i, 661.
[3] Ballon, Harry, Singer, J. J., and Graham, E. A.: *Journ. Thoracic Surg.*, December, 1931–June, 1932, i, 2.
[4] Eloesser, L.: Ibid., i, 1.

NOISE IN BUILDINGS

The reduction of noise in buildings, with certain recommendations to architects, is the subject of Building Research Bulletin, No. 14, issued by the Department of Scientific and Industrial Research.[1] Noise prevention is no simple matter, and it calls for a good deal of ingenuity on the part of constructors of buildings. The very walls which are supposed to shut out noise may intensify it by their diaphragm action, like that of the cone of a loud speaker. Windows reflect most of the sound that strikes them, but should the frame be ill fitting or the panes large the portion of sound which is not reflected causes vibration of the window itself, and a noise is set up which may be more troublesome than the external sounds. Upper floors might be supposed to be less noisy than ground floors, but in fact they are more noisy, owing to the angle of reflection from the road paving or from opposite buildings. An exception is a roof floor above the cornice, set well back behind a solid parapet; this is relatively quiet, which may perhaps explain why poetry is associated with the attic. An objectionable feature of modern construction is said to be hard and dense wall and ceiling plasters and "jointless" floors. Reinforced concrete structure, when employed for such buildings as hospitals and hotels, in which mechanized equipment is unavoidable, presents an acoustic problem of its own, because of the difficulty of introducing discontinuity (and therefore breaking up sound transmission) between the skeleton of the building and the filling membrane, such as the wall panels. The very things which introduce hygiene into modern buildings may add to their

[1] H.M. Stationery Office. (9d. net.)

noisiness, and some people would prefer stagnant air to the noise of a ventilating fan, just as they would rather walk stairs than endure the continual noise of lifts. One thing for which we are grateful to this little bulletin is its attempt to bring before the mind's eye (or ear) that latest unit of science, the decibel. One decibel is the least difference in loudness which the ear can appreciate, and a scale of decibels has been worked out—a kind of spectrum of sound—beginning at zero, the threshold of audibility. The rustle of leaves in a slight breeze is 10 decibels above zero ; a whisper at four feet is 20 decibels ; quiet conversation is 40 ; a typewriting office is 80 ; a room with printing presses is 100, and an aeroplane cabin—the noisiest enclosed place, apparently, as yet invented—is only 10 decibels below the threshold of feeling, at 120. A certain level of sound is not only tolerable but desirable. Persons become acclimatized to it, and are unhappy in unusual silence, just as people who live near a mill have a troubled feeling only when the machinery stops. What is resented is the intruding noise of much greater loudness or shrillness than the customary level, such as the noise of a pneumatic drill intervening in the low buzz of conversation, or a strident motor horn in a moderately quiet street. In this pamphlet figures are even given to denote the average noise which can be readily tolerated in various surroundings: for example, the figure for a hospital is 8 to 12 decibels ; for a music studio, 10 to 15 ; for apartments, hotels, and houses, 10 to 20 ; for theatres, churches, class-rooms, and libraries, 15 to 25, and for banks and public offices, 25 to 40. The degree of discomfort caused by a loud intruding noise depends upon the level of sound normal to the room or ward or auditorium.

B.C.G. INOCULATION OF NURSES

Dr. J. Heimbeck has now brought up to date the statistics concerning the nurses given subcutaneous injections of B.C.G. at the Ullevaal communal hospital in Oslo since 1927.[1] His controls go back to 1924. From that year onwards there were 266 nurses who, when they began work as probationers, were found to be Pirquet-negative, and of these 82 (30.8 per cent.) developed later some manifestation of tuberculosis. There were also 496 probationers found to be Pirquet-positive when they began work, and only 18 of these (3.6 per cent.) afterwards showed any manifestations of tuberculosis. Hence Heimbeck's ambition render Pirquet-negative probationers Pirquet-positive by B.C.G. inoculation. Since 1927 he has thus treated 243 Pirquet-negative probationers, of whom 119 became Pirquet-positive in response to the B.C.G. There were also 69 who remained Pirquet-negative, 16 who gave a doubtful reaction, and 39 who had to be discarded for statistical purposes. Only one of the 119 probationers becoming Pirquet-positive after B.C.G. inoculation subsequently developed manifestations of tuberculosis, in contrast with 22 (26.9 per cent.) among the 16 doubtful reactors and the 69 negative reactors. Heimbeck concludes that if a first inoculation of B.C.G. fails to provoke an allergic reaction, as evidenced by a positive Pirquet, the person concerned also fails to acquire immunity to tuberculosis. Accordingly, he gives such persons another injection of B.C.G. As it takes on the average about two months for B.C.G. to convert a negative to a positive Pirquet, and as another two months are needed when a second injection has to be given, it follows that in this interval of two to four months the person concerned should not come in contact with an infectious case of tuberculosis. But once B.C.G. has rendered a person Pirquet-positive, it is not only permissible, but even desirable, that he should be exposed to virulent tubercle bacilli in order that he may acquire a more lasting immunity than that which B.C.G. confers. Heimbeck has, however, known a positive Pirquet, induced by B.C.G., to last as long as three years.

[1] *Tidsskr. f. d. Norske Laegefor.*, May 15th, 1933.

INDUSTRIAL HEALTH

The thirteenth annual report of the Industrial Health Research Board records a year of steady progress in industrial investigations, though the Board does not claim that the work has reached authoritative or final conclusions. It is pointed out that many of the Board's investigations constitute critical long-range research, which may take years to show results. For instance, the vocational selection tests which are being made in the Royal Tank Corps have indicated that those recruits who did well in certain tests, involving intelligence and spatial perception, tended to be most proficient in driving and manipulating tanks and other vehicles. Consequently these tests have been handed over for practical purposes with the prospect of their helping to improve the standard of recruitment, but it will be some years before an adequate proof can be obtained of their efficacy. Again, an investigation concerning the factors involved in unemployability among boys has been started. The Ministry of Labour is co-operating, and an attempt is being made to find out some of the personal factors which tend to make employment hard to get and to keep as opposed to those that are often assumed to do so. A lengthy period must necessarily elapse before any results are available. The investigations conducted into the physiology and psychology of work must likewise be incomplete. The physiological investigations include a comparison of static and dynamic work, and an inquiry into the height, weight, and strength of a huge group of 10,000 men, while psychological investigations include a study of repetitive work—one on dexterity tests in various manual operations and their correlation with occupational success, and one on the effect of incentives on output. On the other hand, some of the investigations on the effects of environmental conditions have yielded definite results which can be applied directly to industry. For instance, the wearing of " ear defenders " by a group of weavers was found to diminish the adverse effects of noise so much as to increase personal efficiency 12 per cent. Other observations were made on a group of typists who were provided with noiseless typewriters. Their output was found to be significantly higher than that of typists using ordinary machines, and when, in the second year, the groups of typists were transposed, there was again a balance in favour of the users of the noiseless machines. Other environmental conditions investigated relate to the measurement of radiant heat in relation to its influence on warmth comfort, and the effects of lighting on efficiency.

101st ANNUAL MEETING

of the

British Medical Association

HELD IN DUBLIN, JULY, 1933

THE SECTIONS

SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL *the opening papers communicated to the Scientific Sections of the Annual Meeting at Dublin. The reports of discussions in this and previous weeks' issues are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Friday, July 28th

DIABETES

With the President, Professor HENRY F. MOORE (Dublin), in the chair, Dr. R. D. LAWRENCE opened a discussion on the treatment of diabetes, with special reference to high carbohydrate diets. After referring to the low-calorie diets of the past, and to the recent practice of giving high and moderate carbohydrate diets, he discussed the influence of the vagus, and of endocrine glands other than the pancreas, and mentioned the work of Houssay and Cushing, which proved the influence of the pituitary body on the disease. Insulin rectified carbohydrate disturbance however produced. Properly treated, ten healthy years had already been assured to thousands, and this health might continue indefinitely. Poorly controlled cases became severe after five to ten years, or developed complications. He described the high carbohydrate diets of Sansum and Rabinowitch, and the experimental diets of Eason and Lyon. His own method was to give a regular, weighed amount of carbohydrate, rarely less than 100 grams (the amount necessary to prevent ketosis), balanced by its correct dose of insulin. The patient ate protein and fat without regard to calorie value. He found that the intake was usually beautifully attuned to metabolic requirements. The advantage of this method was the patient's freedom and lack of preoccupation with his disease.

Professor MURRAY LYON (Edinburgh) described some experiments of his own on high carbohydrate diets in fifty cases. With the diets of the Rabinowitch type, the carbohydrate previously taken was doubled, the protein remained constant, and the fat was reduced to not less than 50 grams. He confirmed the theory that it was possible for these patients to deal with very much larger quantities of carbohydrate if the fat intake was low, often without increase of insulin. He found diets with high carbohydrate required increased insulin when the calories were kept constant. After a discussion of the high renal threshold in many diabetics, Professor Murray Lyon pointed out that severe hypoglycaemic attacks were more likely to occur when the fats were low, and that blood cholesterol showed no reduction in the high carbohydrate diets. He concluded by stating that the claims put forward for high carbohydrate diets had not been fully substantiated, although he suggested they might be very useful in the treatment of children and adolescents.

Dr. GEORGE GRAHAM reported observations on a series of fifteen patients. The treatment began in 1924 with low carbohydrate diets of about 40 grams. He did not vary the protein, and reduced the fat to a minimum of 100 grams, gradually increasing the carbohydrate to about 150 grams. Eight patients required less insulin, and the maximum increase was 25 units. He found that for an increase of 30 grams carbohydrate he had to give about 8 more units of insulin. He described another series of forty cases which were given high carbohydrate diets. In spite of the high carbohydrate the insulin requirements in ten were lowered, in four they remained the same, and in twenty-six cases the insulin was increased, the maximum increase being 25 units. The cause of the improvement in these cases might be the reduction of the calorie value of the diets or the alteration in the carbohydrate-fat balance, but in his opinion the main advantage was that the blood sugar could be better controlled by insulin.

Dr. R. H. MICKS (Dublin) urged that the criterion of success should be improvement in the patient's health rather than satisfactory biochemical figures. In the growing child the diet should be carefully scrutinized for possible vitamin deficiency. To the obedient well-ordered patient a recurring hypoglycaemia, however mild, constituted a serious threat to emotional and mental health, and might readily produce a neurasthenic state. The disobedient diabetic, who by eating starch to excess avoided the perils of ketosis, was conducting an interesting experiment. Was he doing himself much harm? He considered that in acute emergencies, for a few days at any rate, excessive glucose was not even temporarily harmful to carbohydrate tolerance.

Dr. L. K. MALLEY (Dublin) discussed the dangers of the high carbohydrate diets. Professor L. S. P. DAVIDSON (Aberdeen) stressed the value of Dr. Lawrence's methods. Dr. M. NICHOLSON (Dublin) felt that general practitioners should be reminded to warn patients that, should they vary their amount of exercise or suffer from sepsis, their insulin would have to be varied.

The CHAIRMAN summed up, remarking that insulin was free to all necessitous patients in Ireland. His method of treatment resembled Dr. Lawrence's, but he did require his patients to weigh out their protein and fat, if not daily at least once a week.

Dr. LAWRENCE, in reply, said that he did not usually permit the freedom of the diet he had described to children or obese patients.

NEPHROSIS

Professor W. W. D. THOMSON (Belfast) then took the chair, and Dr. GEOFFREY THOMPSON (Dublin) read a paper on the problem of nephrosis. In nephrosis there was persistent oedema and proteinuria, without haematuria, hypertension, or renal insufficiency; there were casts in urine, and peculiar lipoid droplets. He described five cases, in all of which the condition developed slowly the full clinical syndrome. Four of them became definite cases of glomerulonephritis. The cause of the disease was unknown. In discussing treatment he said that salt must not be permitted in cooking; the patients should have fresh butter and special bread, but no milk. Ammonium chloride should be given in adequate doses.

VITAMIN B IN ANAEMIA

Professor L. S. P. DAVIDSON (Aberdeen) read a paper on vitamin B and its therapeutic action in anaemia. He would prefer, he said, to substitute for "vitamin B" in his title the words "autolysed yeast," as it had been proved by recently published work that the haemopoietic factor in autolysed yeast or marmite was not vitamin B. He reviewed the therapeutic effects of yeast products in different types of anaemia, and described the records of sixteen cases of Addisonian anaemia treated with autolysed yeast. He considered that such products contained some haematopoietic principle, but its concentration was small. They could not therefore, in their present form, be used as substitutes for liver, liver extract, or hog's stomach extract. Professor H. F. MOORE (Dublin) pleaded that the nomenclature of the anaemias should be altered and standardized. Dr. E. T. FREEMAN (Dublin) asked whether ventriculin and marmite together would prove valuable. Dr. LUCY WILLS said that in her investigations she had never seen cases of macrocytic anaemia which had maintained their high colour index after the anaemia improved. Professor DAVIDSON briefly replied.

COMBINED SECTIONS OF SURGERY AND RADIOLOGY

Friday, July 28th

RADIATION IN MALIGNANT DISEASE

At a combined meeting of the Sections of Surgery and Radiology, with Mr. C. J. MACAULEY (Dublin) in the chair, Dr. H. POOLE (Dublin) read a paper on the physical basis of radiation. He described the alpha, beta, and gamma rays of radium, drawing attention to their differing velocities and penetrating powers, and pointing out that Radium C was responsible for most of the energy used in radiotherapy. Radium emanation, which was widely used in Ireland, had the advantage that it could be prepared in a number of forms at a centre and issued throughout the country. Its main disadvantage was that it deteriorated rapidly, and so was not equivalent to radium. The speaker described the radium emanation plant used in Dublin, and said that the dangers involved in its preparation had been largely overcome by suitable protective measures.

Mr. E. L. PEARCE GOULD said that the time was ripe for assessing the value of radiation treatment in malignant disease, and suggested that answers should be given to questions concerning four groups of cases. They had to inquire in which cases radiation was the best method, in which cases a combination of radiation and surgery offered the best chance, in which radiation was a valuable palliative measure, and in which cases radiation treatment had proved useless. The answers were important to the public, the practitioner, the young surgeon, and the radiotherapeutist, and were to be found in exact and complete data supplied by the radiologists and surgeons. Such data must of necessity be compared with surgical data under strictly comparable conditions. At the Middlesex Hospital the results of surgical and radiation treatment had been tabulated on the same forms. Of 11,000 cases of cancer, including that of the buccal cavity, lip, parotid gland, stomach, colon, rectum, and skin, only 455 were suitable for radical surgery. It seemed that radium and *x* rays resembled surgery in that they were local remedies, and it was a striking fact that surgery and radium gave encouraging or disappointing results in similar groups of malignant disease. This was attributable, no doubt, to the fact that the same anatomical and pathological limitations were imposed upon each.

Dr. OLIVER CHANCE (Dublin) ascribed the resemblance in the results from surgery, *x* rays, and radium to the fact that success depended on the individual worker rather than on the medium with which he worked. Radium therapy depended on the fact that the radiation acted on the dividing and not on the resting cell, and this explained why, for instance, rodent ulcer was more amenable to radiation than gastric carcinoma, the rate of cell division being slower in the latter condition. Some factors which militated against a good result in radium therapy were: a poor blood supply, the presence of sepsis, and a poor general condition. Dr. Chance outlined the various ways of using radium in therapy, and referred to the introduction of emanation needles for the first time by Professor Joly and Dr. Stevenson of Dublin. Until interstitial irradiation became more exact and scientific the surgeon could carry it out as well as the radiologist. But as the technique improved the radium therapist would be more competent than the surgeon to devise and administer treatment. It was essential that treatment should be carried out in a special clinic where every facility was available.

Dr. W. M. LEVITT, after reviewing the common methods of radium treatment, said that histological classification in relation to radio-sensitivity had been worked out only on broad lines. He grouped the commoner growths under three headings. The highly radio-sensitive group included small round-celled and lymphosarcoma, seminoma, some carcinomata of the breast and ovary, and medulloblastomata. In the moderately radio-sensitive group were the round-celled, endosteal and chondro-sarcomata, and some periosteal sarcomata, carcinoma of the prostate, bladder, cervix and corpus uteri, ovary, thyroid, lip, and skin, lympho-epitheliomata of the palate, pharynx, and larynx, and most carcinomata of the breast. Radio-resistant growths comprised carcinoma of the rectum, oesophagus, tongue, and bronchi, some carcinomata of the pharynx, breast, and ovary, spindle-celled and fibro-sarcoma, and metastases in cervical glands from carcinoma of the tongue. Of the highly sensitive group the sarcomata should always be treated by external irradiation, by *x* rays, or by telecurietherapy, *x* rays being preferable. Highly sensitive carcinomata of the breast and ovary could not be diagnosed beforehand, and were always treated, therefore, as belonging to the less sensitive type. Moderately sensitive growths—with the exception of carcinoma of the skin, which should be treated by *x* rays or surface radium—should be treated by interstitial radiation. *X* rays gave good primary results in certain growths of the pharynx and palate, and in carcinoma of the prostate, cervix and corpus uteri, and of the thyroid gland. Recurrence was so common, however, that subsequent surgical or radium treatment was advocated. In the radio-resistant group careful interstitial irradiation was the best method.

In conclusion, Dr. Levitt drew attention to the frequency with which three- and five-year results differed when surgical and radiational methods were compared. It was probable, however, that although the number of survivals might be the same in any particular group of cases, the individual survivors would differ with the method of treatment. It was important, therefore, that they should not be tempted to rely on any one form of treatment alone in this deadly disease, but that every method which had proved its worth should be considered.

Mr. GEOFFREY KEYNES urged the necessity for a combination of surgical and radiation methods. Of the epiblastic neoplasms all inoperable growths and those of the lips, buccal cavity, nasopharynx, anus, and skin should almost always be treated by radiology alone ; those of the stomach, colon, and rectum by surgery. Carcinoma of the breast, with which he was most concerned, should be treated radiologically, either alone or with conservative surgery. In the inoperable group seven out of twenty-five had survived five years without disease. In the operable cases treated by radium alone the results were 2.6 per cent. better than in those treated at the Middlesex Hospital by surgery alone over a three-year period.

Dr. R. STUMPF (Dublin) advocated the use of Forssell's classification of tumours on grounds of localization rather than of histology. The general practitioner could help the radiologist greatly by reporting accurately about patients at the appointed time, and by assisting in the after-treatment. Dr. Stumpf supported Dr. Chance in his plea for a special radiotherapeutic centre in the Irish Free State.

Dr. P. H. WHITAKER (Liverpool) said that radiation treatment was limited by the inaccessibility of malignant growths, and by their lack of radio-sensitivity. Those suitable for irradiation were growths of the buccal cavity, lips, cervix, skin, upper air passages, and some sarcomata. After outlining the most suitable methods of treatment in each of these, the speaker drew attention to the frequent similarity of the results of surgery and irradiation respectively. This suggested that both forms of treatment were governed by the same factor. There seemed no reason why the breast, after irradiation, should not be removed. It was a source of danger, and radiological healing was difficult to assess. After quoting statistics from some Continental centres, the speaker urged the necessity of co-operation between surgeon and radiologist, and of combination of the therapeutic measures used by each.

Dr. B. W. WINDEYER said that radiation alone had proved its value in carcinoma of the skin, buccal cavity, lip, pharynx, tonsil, and cervix, and quoted statistics from Roy Ward, Lacassagne, Régaud, and Coutard in support of this. As a palliative measure in carcinoma of the mouth, breast, and cervix, radiation was invaluable in relieving symptoms, and this was an aspect which should not be overlooked. As an indication of the large number of cases suitable for radiation treatment, it had been found that, at the Middlesex Hospital in 1932, 554 cases of malignant disease were treated ; 27.4 per cent. of

these were treated by surgery alone, 46.9 per cent. by radiation alone, and 25.7 per cent. by a combination of these methods.

Mr. E. G. Slesinger was unable to be present, and Mr. W. H. Ogilvie read his paper. He said that for the surgeon cases were divided into two groups—operable and inoperable. Radiation was most useful in the latter. It was essential that patients should be seen by someone who could assess the value of surgery and of radiation. In cancer of the oto-pharyngo-laryngeal region radium was the method of choice, except in the case of the lip and upper jaw. In the alimentary canal surgery remained the best method of treatment. In early carcinoma of the breast surgical results were so good that he did not think the use of radium was justified.

Dr. Ralston Paterson (Manchester) said that radium therapy was advancing rapidly in two directions. More types of malignant disease were coming within its scope, and results were being improved in each group. To illustrate this it was only necessary to study the steadily improving results which had been obtained during the last few years in carcinoma of the buccal cavity and of the uterine cervix. In radium therapy some accurate method of dosage was essential. There was no reason why the *r* unit should not be employed for gamma radiation, as it was for *x* rays, and he was using the unit in Manchester. It was possible to measure tolerance and lethal dosage in physical terms if the time factor was also expressed. He had found that the lethal dose for all epitheliomata was 6,000 r. In conclusion, Dr. Paterson supported Dr. Chance's plea for centralization of radiation work.

Mr. Pearce Gould, in reply, said that each speaker had contributed a great deal to the discussion, and he hoped that radiologists would go from the meeting with the feeling that they had the sympathy and co-operation of the surgeons. The discussion had revealed that the forms of malignant disease suitable for radiation were becoming well recognized. Earlier diagnosis would be one of the greatest advances in the treatment of malignant disease.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Friday, July 28th

Artificial Menopause

The third day of the meetings of this Section was devoted to the reading of short papers. Dr. T. M. Healy (Dublin) a Vice-President, was in the chair.

Miss Louisa Martindale read a paper on the artificial menopause, with special reference to the end-results obtained by various methods of induction. She presented a statistical analysis of 620 cases of metropathia haemorrhagica and fibromata uteri treated by operation in 312 cases, intensive *x*-ray therapy in 263, and radium therapy in forty-five. Surgery was used in cases in which the diagnosis was doubtful, in which the uterus was larger than a four months' pregnancy and was causing pressure symptoms, in which the fibroids were subperitoneal or submucous or undergoing degeneration, and in which the patient was young and a myomectomy could be performed. Irradiation was the treatment of choice in climacteric haemorrhages with fibrosis uteri. The menopausal disturbances were no more severe in the irradiated cases than in those of the normal climacteric. Temporary amenorrhoea was valuable as a treatment in certain types of psychosis and of tuberculosis. Mr. Leonard Phillips emphasized the necessity of a preliminary diagnostic curettage. He spoke of complications of radium treatment, mentioning vaginal discharge, pyometra, salpingitis, and phlebitis. In spite of these, he thought radium was the best method of inducing the menopause. Mr. Green-Armytage preferred hysterectomy to other methods of treatment. The President, Dr. Bethel Solomons (Dublin), discussed the question of embolism following on hysterectomy. One should be very careful in advising the induction of the menopause as a treatment for psychosis. Dr. E. W. Masterman objected to hysterectomy with retention of ovaries being included in the discussion. Dame Louise McIlroy spoke favourably of *x*-ray therapy in cases of pelvic tuberculosis. Operation often did great harm in such patients.

In reply, Miss Martindale said she always carried out a preliminary diagnostic curettage. There was a risk of cancerophobia developing if the patient knew she had radium treatment: marital relations were not disturbed after *x*-ray treatment.

Diagnosis of Pregnancy

Dame Louise McIlroy read a paper on some difficulties in the diagnosis of pregnancy, with special reference to the Zondek-Aschheim test. She said that the usual signs of pregnancy—even to experienced practitioners—were often difficult to elicit. It was important to detect the intermittent contractions of the uterus. The Zondek-Aschheim test was of the greatest value in the early diagnosis of pregnancy, in cases of pregnancy, mole, etc. She then gave details of its use, and showed a series of photographs illustrating the employment of *x* rays in the diagnosis of pregnancy and of obstetric abnormalities. Mr. Green-Armytage confirmed what had been said regarding the clinical value of the Zondek-Aschheim test. He had also used it in the diagnosis of early ectopic pregnancy. Mr. Chassar Moir pointed out that the test only indicated a *living* gestation, and might be negative in missed abortion or in cases of extrauterine pregnancy with serious haemorrhage. Mr. Leonard Phillips also spoke.

Hysterectomy

Professor A. H. Davidson (Dublin), in a critical survey of hysterectomy, dealt with a series of 210 cases. He made a strong plea for the total—as opposed to the subtotal—operation. His mortality for total hysterectomy was 1.58 per cent. There were few operative or post-operative complications, the operation could be done quickly, and the average length of stay in hospital was sixteen days. Dyspareunia following the operation had occurred in only one case. Many eminent gynaecologists advocated the total operation because there was a definite tendency for the stump of the cervix to become carcinomatous. He emphasized the importance of removing a chronically infected cervix; the improvement to the patient's general health was very great. Two cinematograph films were then shown, illustrating Professor Davidson's technique. Mr. Green-Armytage made an appeal for the wider use of the vaginal route for performing hysterectomy in cases of adenomyosis, precancerous cervices, small fibroids, and metropathia haemorrhagica. In his experience of 286 vaginal hysterectomies there was complete absence of embolism, and the patient got up on the eighth to the tenth day. Dr. Bethel Solomons said that there could be no hard-and-fast rule regarding the best type of operation; it depended on the individual case. He thought that hysterectomy was often advised and performed for insufficient reason; this was especially so in cases of psychosis.

External Cephalic Version

Mr. Norman White read a paper on external cephalic version, prepared in co-operation with Dr. J. D. Flew. He gave details of 300 cases of version performed during pregnancy at University College Hospital. An anaesthetic was used on ninety-two occasions. The optimum time for version was the thirty-fifth week. If done later there was greater risk of injury to the placenta, and of malpresentation. The operation when performed under an anaesthetic was not without risk. Bleeding had occurred six times in ninety-two successful cases and four times in twenty-eight cases of attempted version. In 293 cases the foetal mortality was 5 per cent. Details concerning the technique of the operation were given. Dame Louise McIlroy questioned whether these cases were not better left to nature. An abnormality was often present. *X*-ray examination should be made. With a patient under an anaesthetic the operator often employed too great force in a determination not to be beaten. Mr. Leonard Phillips said that a case could be made out for performing Caesarean section in a primiparous breech with extended legs where version had failed. Mr. Chassar Moir said

the opinion of the meeting appeared to be divided on the value of external version. He strongly advocated this simple operation, which had practically no risk if performed with gentleness and care. By such means the foetal death rate in breech deliveries, which at present stood at the appalling figure of one in every three primiparous cases, could be reduced. Cephalic version also allowed estimation for disproportion to be made. Dr. GIBBON FITZGIBBON (Dublin) advocated induction of premature labour in breech cases. Dr. R. H. J. M. CORBET (Dublin) remarked that he did not perform version in the multipara with lax abdomen, because the foetus did not stay in its new position. The multiparous breech case might be difficult to deliver because of the large size of the foetus. Dr. JOAN K. ROSE (Edinburgh) said that she examined the vaginal flora before starting any obstetrical manipulation. Mr. L. CARNAC RIVETT did not agree that malpresentations were common after version.

"CAPSULE" CHLOROFORM ANALGESIA

Mr. L. CARNAC RIVETT read a paper on chloroform analgesia obtained by the employment of glass capsules which could be crushed by the attending midwife and inhaled on a mask held by the patient. It was not a method of anaesthesia. There was no danger, and the analgesia was satisfactory. The capsules were intended for use by midwives, not by doctors. They were cheap and could be employed over long periods; one capsule lasted for about ten minutes. Dr. E. W. MASTERMAN spoke of the enormous boon the capsules had been in the obstetric departments of London County Council hospitals. Dr. LETITIA FAIRFIELD said that prior to the introduction of capsules the resident anaesthetists had been greatly overworked, and sometimes it was impossible to give every patient an anaesthetic. That was now changed, and capsules were used with enthusiasm. In 861 cases there had been no bad effects, save that 5 per cent. of patients became noisy. Labour was not prolonged. The labour ward sister was first instructed by an anaesthetist, and was then allowed to give the capsules to normal cases, provided that assistance was within reach. Dr. BETHEL SOLOMONS asked who was to sign the death certificate if a death should occur while the patient was using the capsules. Dr. GIBBON FITZGIBBON (Dublin) also spoke. Mr. RIVETT replied.

SECTION OF OPHTHALMOLOGY

Friday, July 28th

SCHOOL MYOPIA

With the President, Mr. F. C. CRAWLEY (Dublin), in the chair, Mr. ARNOLD SORSBY opened a discussion on the control of school myopia. He discussed the various attempts that had been made to control myopia. Cohn, who believed that environmental factors were responsible, hoped that the problem would be solved by attention to school hygiene. Fifty years of work in that direction had, however, led to negative results. For the understanding of the problem it was essential that more should be known of the changes that took place in the growing eye. The growth of the eye was held to be completed by the age of 8; during this process the eye had become longer by about 8 mm. Such lengthening would represent an increase of refraction by about 30 to 40 dioptres. Yet the total refraction of the eye changed by hardly more than 2 or 3 dioptres. Obviously, marked and correlated changes took place in the anterior segment of the eye, and the study of these changes had been almost entirely neglected. Myopia, coming on after the age of 8, represented either a failure in that correlation—in which case the eye could not have completed its growth by the age of 8—or else it represented an independent process arising after the period of growth and consolidation. That it represented a failure in correlation was supported by the evidence of refraction curves. These showed a peak towards emmetropia, such as could not be explained by a chance variation. Correlation and its anomalies were therefore active processes. Moreover, the various refractive components of the eye were not free variables. The view that myopia could be explained as the chance combination of free variables themselves determined by heredity was not tenable, nor was the monistic conception of all myopia as the result of the inheritance of large retinae. Whilst attention to environmental factors had not solved the problem, the fatalism of those who regarded myopia as an hereditarily determined condition was not warranted. Knowledge of the physiology of the growing eye had still to contribute to the understanding of the problem.

Mr. BISHOP HARMAN said that the majority of cases began at the age of 5 and increased through school life. Astigmatism was definitely an exciting factor. There was overwhelming proof that drastic reforms in educational methods in countries where myopia was excessive had been followed by dramatic reduction in incidence. So, too, in England there was control of myopia in the mass, but the difficulty was to control it in the individual. Some cases progressed despite all care and treatment. He inclined to the view that in some cases there was congenital inadequacy in the fibrous tissue of the sclerotic. In such cases he stopped all schooling, prescribed open air, and gave small doses of iron. Such treatment checked the progress.

Mr. J. D. M. CARDELL found that in an area comprising 17,500 school children the level of myopia had remained steady during the last seven years at 2 per cent., and that on an average only one case per annum had to be sent to a myope school. He recognized a pre-myopic stage, and suggested how such cases should be treated. High myopes were kept, under supervision, at an ordinary school until they could no longer be taught with benefit to themselves. He stressed the tendency of myopia to enter upon quiescent stages. This led to errors in the estimation of the efficacy of any particular form of treatment. Dr. HARRIS TOMLIN (Dublin) recommended that examination should not be entrusted to inexperienced doctors or nurses, that pseudo-myopia was over-stressed, and that a full correction should be worn. Another speaker considered that the examination of each case should be completed in one visit. Dr. R. D. JOYCE (Dublin) stated that excessive convergence should be prevented, that a reading correction giving a large size retinal image should be ordered, and that the centring of the glasses should be accurate. Other questions raised in the discussion were answered by Messrs. SORSBY, BISHOP HARMAN, and CARDELL.

PROTECTIVE GLASSES

Mr. J. D. M. CARDELL read a paper on protective glasses in mountaineering and in industry. He said that the difficulty was to provide adequate protection with sufficient visual acuity for climbing under hazardous conditions. After a good deal of experimental work, in which he had the assistance of Messrs. Hamblin, he had evolved a goggle which, though not giving the fullest protection, was satisfactory from a practical point of view. It was light in construction, comfortable in wear, and adequate in ventilation. The same type of goggle, but with a film of silver of a thickness varying with the particular needs of any process taking the place of the coloured lamina, was suitable for protecting welders, iron puddlers, etc. The lamination of the glass protected against flying particles, and if a glass became cracked a fresh one could be instantaneously substituted by removing the clip inside the eye cup. The difficulty was to induce workmen to wear any protection at all, and the one feature which would recommend a goggle to them would be the adequacy of ventilation. Mr. Cardell later replied to the many questions put by the members on the subject of his paper.

OTHER MATTERS

Mr. CARDELL next demonstrated a simple apparatus for testing the vision of patients in bed. This consisted of a light and short tube, with Snellen's test type photographically reduced on a small circular lantern slide at one end, with a lens at the other of sufficient strength to relax accommodation. From the latter end a bar projected, having at its end a pad to rest on the superior maxilla below a trial frame. The test type could be detached and any astigmatic test substituted for it. This

apparatus had been made for him by Rayner of Bond Street, London, W.1.

At the Royal College of Surgeons Miss PUGH read a paper on, and gave a demonstration of, orthoptic treatment. She said that the chief instruments used in developing stereoscopic vision were the synoptophore, orthoptoscope, stereoscope, and cheiroscope. The first two were really a Worth's amblyoscope with many adjustments. The treatment required at least nine months for a stable result, and in many cases much longer, but the results were well worth the time and trouble spent. The degree of squint was a very great factor in the prognosis. In cases of convergent concomitant strabismus of 15 degrees or under there was a very favourable prognosis. Roughly about 77 per cent. of cases developed stereoscopic vision, with their eyes straight, in about six months' treatment. In cases of convergent concomitant strabismus of over fifteen degrees the training took much longer, and in some cases it was advisable that, after fusion had been developed, the eye should be put as straight as possible by operation and the training continued from three days after the operation. Cases of divergent strabismus of up to 20 degrees had a favourable prognosis. About 90 per cent. were successful in a comparatively short time—six months or under. Cases which had been operated on, and had a residual squint of 15 degrees or more, were often more resistant to treatment, and even where the deviation was less than 10 degrees a longer time was generally required than in cases of a corresponding degree in non-operated types. It would seem, then, that it was very necessary for a fusion sense to be developed before operative measures were undertaken.

SECTION OF HISTORY OF MEDICINE

Friday, July 28th

THE APOTHECARY AND POET

Dr. T. P. C. KIRKPATRICK, President of the Section, extended a warm welcome to the members present, who numbered fifty-seven. He then asked Dr. T. WILSON PARRY to read a paper on "John Keats: Medical Student, Qualified Surgeon, and Poet."

Dr. Wilson Parry detailed the outstanding events in the life of Keats. At the age of 16, when he left school, he was apprenticed to a general practitioner at Edmonton, and remained with him for four years. He then entered Guy's Hospital as a medical student. At this time Keats was described as dressing shabbily, disregarding appearances as he did opinions, and possessing an amount of moral and physical courage which stood him in good stead. His profession was not of his own choice, and he found difficulty in applying himself to it. In the lecture room he seemed to sit apart and to be absorbed in something else. Yet at his qualifying examination for the Society of Apothecaries he displayed an amount of acquirement which surprised his fellow students. He was a contemporary of Bright and Addison. Keats never practised, but once or twice contemplated doing so when his literary prospects seemed poor. Early in 1818 he began a three months' period of nursing his brother Tom, who had phthisis, and undoubtedly then contracted the disease. A walking tour followed, but the weather conditions were so bad that an acute throat malady ensued. He went back to his brother, who died a few months later, and from that time the infection in himself progressed steadily. It was decided that he should spend the winter of 1820–1 in Italy, but the sea journey was very arduous, and he was acutely ill when he reached Rome, dying in February, 1821. Dr. Parry remarked that Keats in his poetry deliberately avoided anything relating to surgical art or medical science, but there was evidence in his writings of a keen power of observation. He had devoted his life to the cultivation and adoration of the beautiful. The speaker expressed his deep indebtedness to the poet, who had repeatedly enabled him as a medical student to escape from the materialism of medical science. He was, surely, the doctors' poet, and his best work had been an inspiration to many, including the late Dr. Mitchell Bruce.

Sir HUMPHRY ROLLESTON paid a warm tribute to the valuable and highly poetical content of Dr. Parry's paper. Some of the genius of Keats might have been attributable to the presence in him of the tuberculosis toxin. Dr. P. G. LEE (Cork) spoke of the debt of gratitude he owed to the work of Keats, who compared very favourably with other great geniuses, and well deserved to be studied by the medical practitioners of to-day.

EARLY IRISH HYPNOTISTS AND MESMERISTS

Dr. CECIL P. SMYLY (Dublin) read a paper on the precursors and followers of Mesmer and Braid in Ireland. After a brief review of the work of these two, he mentioned that the ancient Irish Druids were described as having produced trance and clairvoyance. More than a hundred years before Mesmer, James Finaghty, a parish priest in Tuam, had acquired a great local reputation for "dispossessing of devils from such as he himself alone was pleased to judge possessed, and curing too, or at least pretending and attempting to cure, all other diseases by prayers and exorcism and touching and crossing and stroking, and (sometimes for some diseases) by blowing vehemently and laboriously into the ears of the diseased party." In 1663 and afterwards he assembled large crowds in Dublin to watch his treatment. To avoid a public trial before the Viceroy he fled to Galway, where he resumed his practices until the Archbishop of Tuam took him to task for saying that all the women in Ireland were possessed by the devil, and forbade him from practising any more. Valentine Greatrakes (1628–83) claimed to be able to cure the King's Evil, and, later, other diseases, by stroking the faces of the patients. Unlike Father Finaghty, he always refused any remuneration, and practised for a time in London. He died possessed of considerable wealth. In 1829 Richard Chevenix revived in London the subject of animal magnetism, having begun by treating the children of peasants in Ireland for various complaints. In London he was allowed to practise at St. George's Hospital and a military hospital. A "Mesmeric Infirmary" was established in Dublin in 1843, and in 1851 a series of lectures on mesmerism was delivered at the Rotunda. In some parts of Ireland mesmerism, animal magnetism, and electro-biology long remained familiar terms, and were regularly employed by laymen. At the end of the 'eighties Sir Francis Cruise, who had been for many years on the staff of the Mater Hospital, took up the study of hypnotism; he later visited the clinics of Liébault and Bernheim at Nancy, and of Luys and Charcot in Paris. In April, 1891, he had read a paper before the Royal Academy of Medicine. In July, 1893, a B.M.A. committee reported that it had been convinced of the genuineness of the hypnotic state, but had found nothing to support the theory of animal magnetism; that the treatment had its uses, but should only be practised by medical men, and then only with care and discretion—thus endorsing the opinions stated by Cruise.

Dr. P. G. LEE said that Greatrakes had achieved considerable success with eye diseases. His stroking or rubbing might conceivably have had some good results in pannus. An interesting problem was the place of his burial. He had undoubtedly done very well in his time, for his name was long remembered among the peasantry. Dr. SMYLY replied that there existed a record that Greatrakes had expressed the desire to be buried in Lismore. He had been buried, however, in Athlone, in County Waterlow, in the nave of the church. During later reconstruction the exact site had entirely disappeared.

ASPECTS OF SIR WILLIAM PETTY'S WORK

Dr. J. PRENDERGAST gave an account of the life of Sir William Petty, the records of whom afforded a good illustration of certain sides of contemporary medical activities. Petty, who had been born in 1763 at Romsey, Hants, of humble stock, had made the first scientific survey of Ireland, advising against the wholesale confiscation of land and transportation practices, which were then prevalent. He had taken a great interest in mathematics, travelled widely on the Continent, and then lectured on anatomy and physiology at Oxford. He had

reformed the curriculum in that university, criticizing sternly its then unpractical outlook. He had taken a keen interest in clinical observation, like his contemporary Sydenham. After two years in Oxford he had returned to London, and practised near Cheapside. He had always been interested in the Royal Society and its work, especially in physics. He repeated many of the experiments personally, and confirmed the results. His earliest medical paper was on arthritis, but his findings were more interesting than reliable. In another paper on chemistry he followed the usual lines of his time. He had rejected the "doctrine of signatures," which attributed to certain plants resembling organs of the body the power to cure the related diseases. He was much influenced by the doctrine of the *Novum Organum*. He interested himself in the powers of the magnet. His Oxford lectures deplored the lack of facilities for investigation, and attacked the unsuitability of the accommodation for teaching. He praised anatomy, as conferring the power of understanding the body and of prolonging life. He believed that many lines of physical studies, such as optics, could be advanced by considering the nature of the organs of the body. Petty had kept in close touch with all the discoveries of his age. He strongly supported the conclusions of Harvey, and termed the coronary circulation the "least circulation" of the body. He had urged the value of post-mortem examinations, and left useful notes about the liver, kidneys, diaphragm, and walls of the arteries. Comparative anatomy and phrenology attracted his close attention. Petty's outstanding significance was the way in which he had advanced the scientific aspects of physiology and anatomy. Dr. Prendergast considered that hitherto this had not been adequately recognized.

Sir HUMPHRY ROLLESTON thought that a very complete analysis of the work of Petty had been presented. He asked whether it was the case that he had invented a special form of sailing vessel designed to obviate sea-sickness. The PRESIDENT referred to Petty's courage and resourcefulness, and cited an illustration. He had once been involved in a brawl with a man in a street, and had been challenged to a duel. Petty, who was then nearly blind, accepted the challenge, and, having the choice of weapons, demanded that the fight should be with hatchets, and in the dark. Dr. PRENDERGAST, replying, said that Petty had been much interested in naval construction. For preventing sea-sickness he had suggested double-bottomed boats, but they did not prove successful, and one was lost at sea.

BERKLEY ON THE TAR WATER

Dr. J. BELL (Dublin), in a paper with this title, said that few philosophers had exerted so profound an influence on medicine as did Bishop Berkley in his digression on tar water. Berkley, who had been educated at Trinity College, Dublin, took up new ideas in philosophy and developed them. His career had been marked by many high-minded philanthropic projects, one of the most remarkable being a missionary scheme for the evangelization of America by founding a college in Bermuda. He resided in Rhode Island for three years, but a promised Government grant of £20,000 did not materialize, so he returned with the recipe for making tar water—a reputed specific against small-pox—and became Bishop of Cloyne. A winter of unusual severity, followed by famine and disease, ravaged the population. Berkley dispensed tar water with dramatic success, and was thus led to commend it warmly for a list of diseases, including foulness of blood, ulceration of the bowels, consumptive coughs, pleurisy, peripneumony, erysipelas, asthma, indigestion, and inflammations of all kinds. He published his results in 1744 in a book entitled *Siris*, in which he described the preparation of this concoction. Tar water, raised to the dignity of a universal remedy, spread through Europe, despite the fact that very large doses had to be taken, and many stomachs found it difficult to tolerate the nauseous fluid. The medical profession became alarmed, and vigorously denounced this "epidemical madness of drinking tar water"; the resulting controversy lasted for many years. The remedy was used extensively in Dublin, and records of supposed cures were published in the *Dublin Journal*. Yet, after a time, the tar water craze abated, and the controversy terminated suddenly. Berkley had died in 1753, and an account of his life, written in 1784, had dismissed tar water in one paragraph. Dickens had referred to its use in *Great Expectations*, the morbid condition concerned being supposed bolting of food. Tar water lingered longer on the Continent, and Paris restaurants as late as 1890 were wont to place it on their tables. Dr. Bell closed with a comment on the reason for the development of such a reputation, and pointed out that the concoction contained guaiacol, pyrocatechol, creosol, and similar aromatic bodies. It would therefore have a definite action as a gastro-intestinal disinfectant, an expectorant, a deodorant, and an external antiseptic for various skin lesions. Probably the main impetus to its use, however, was Berkley's great reputation as a man of learning. From such past failures, concluded the speaker, had sprung our modern scientific methods of therapeutic research.

A specimen of tar water was supplied to members of the audience, some of whom tried it cautiously, and agreed as to its potent flavour. Dr. Bell explained that it had been prepared from the ordinary Stockholm tar of the *Pharmacopoeia*.

IRISH MEDICAL MEN BEFORE 1600

Dr. T. P. C. KIRKPATRICK, President of the Section, contributed an outline of early Irish medicine, Dr. J. D. ROLLESTON, a Vice-President, taking the chair.

The speaker defined three stages: (1) the prehistoric period, from Neolithic times until the reign of Cormac MacArt in the third century A.D.; (2) historic times, from the third century until the coming of the Anglo-Normans in the second half of the twelfth century; and (3) the Anglo-Norman period, until the foundation of Trinity College and of the University of Dublin. Although there had accumulated a wealth of evidence relating to development and culture in those early days, nothing had been found illustrating any kinds of medical or surgical practice. As in Egypt and Greece, there had been in Ireland a traditional god of medicine—Diancecht, physician of the mythical god-like race, the Tuathe Dé Danaan; he had cured the wounded arm of King Nuada of the Silver Hand somewhere about 1272 A.D. He had also been responsible for a highly curative medicated bath for wounded warriors. Various other medical heroes were mentioned in traditions of subsequent years, and it seemed probable that at the beginning of the Christian era medicine, as practised in Ireland, was quite as far advanced as that in Greece up to the time of Hippocrates, medical knowledge having been derived probably in some measure from Eastern sources. In the ancient laws, codified about the time of St. Patrick, were to be found set out the duties and obligations of the Liaigh or leech, to whom an honoured place was accorded in the social scale. Fees varied according to the rank of the patient and the nature of his malady. A very definite distinction was made between the "lawful" and "unlawful" physicians, based probably on whether the practitioner had satisfactorily fulfilled his obligations as a pupil apprentice. From very early times there had been medical schools in Ireland, but it was likely that the students were instructed chiefly as apprentices of well-known physicians, the nature of such teaching and discipline being indicated in the early Cain Lanamhna, or law of social connexions. From the fifth century onwards Ireland was sending out a stream of missionaries, many with a knowledge of medicine. A hospital system in prehistoric Ireland was probably well developed, usually conducted in the houses of the chief leeches. Many records of early epidemic plagues had come down. With the influx of the Anglo-Normans great advances had followed the introduction of Latin. Leeches were attached to the households of great chieftains, and the profession of medicine became hereditary in certain families. A considerable number of Irish medical manuscripts had been preserved. In Dublin there were in those early days several hospitals, the most important of which was that of St. John Without the New Gate, which had been founded some time before 1188. Early in the fifteenth century this institution had maintained 155 beds

in constant use. It had been abolished by Henry VIII.

Dr. J. D. ROLLESTON said that all must have deeply appreciated so masterly a summary of early Irish medical history. Sir HUMPHRY ROLLESTON added that the papers that had been read had fully justified the existence in the B.M.A. of the Section of the History of Medicine, which was founded in 1927. The PRESIDENT, in a brief reply to questions, stated that the Welsh and Irish Druids had probably been in fairly intimate communication, and both groups had practised healing. Since the system of hereditary physicians had only come into use with the arrival of the Anglo-Normans, the distinction between "lawful" and "unlawful" physicians, which was of earlier date, must have had some other basis than consanguinity.

IMHOTEP

The proceedings of the Section terminated with the communication by the PRESIDENT of the contents of a paper by Dr. GERALD GARRY entitled "Imhotep," the reputed first physician and Egyptian god of medicine. Dr. Garry stated that Imhotep was the first physician to stand out from the vistas of antiquity. Reference was made to the available writings, from which it was deduced that Imhotep was an ordinary mortal, not a professional physician, but a layman who practised healing by magic. His reputed divinity rested on very arguable premisses. The identification of him later with Ἀσκλήπιος was inexplicable. It would seem that he had received every honour during the time of the Ptolemies, and appeared as a physician in the Hermetic literature of the first century of the Christian era. Dr. Garry's opinion was that Imhotep might have been a learned scribe, a man venerated for his wisdom, and around whose name had gathered fabulous myths, rendering it difficult to separate the true from the false. The claims put forward on his behalf as the first recognized physician of antiquity were unjustifiable.

A cordial vote of thanks was tendered to Dr. Kirkpatrick for the part he had played in collecting the exhibits in the historical museum, and so enabling it to reach an exceptionally high level of interest and value.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Friday, July 28th

RENAL FUNCTION IN NEPHRITIS

With the President, Professor J. M. BEATTIE (Liverpool), in the chair, Professor J. SHAW DUNN opened the discussion on renal functional disturbance in acute and subacute nephritis. He dealt chiefly with the subject of renal oedema, and pointed out how in recent years there had been a recession from the original conception of oedema as the direct effect of a renal disability, and a greater interest in extrarenal factors. One of the fundamental objections to the view that renal oedema could be of the nature of retention of fluid resulting from failure of renal function arose from the fact that complete surgical anuria was not accompanied by oedema. There might, however, be special reasons for this which were not applicable to other forms of renal disability. He proceeded to review the main characteristics of the various forms of nephritis in which oedema occurred, and pointed out that the main features which all exhibited were diffuseness of lesion, involvement of all the nephrons, permeability of tufts to protein, and the persistence in bulk of tubular tissue. These degenerative changes were often unassociated with death or desquamation of cells, and the frequently good concentrating power for urea suggested that the cellular alterations were of less lethal import than their extent might imply. A theory of renal oedema which formerly received acceptance was Widal's view that the fault lay in retention by the diseased kidney of common salt and not of fluid. The water was judged to be held secondarily in order to preserve the isotonicity of the tissues. The main grounds for objection to Widal's theory were that very marked salt retention might occur in the blood without oedema resulting, and that in some nephritic oedemas the blood showed no increase of water or salt. This led Volhard to the view that toxic substances absorbed from degenerate renal epithelium damaged capillary walls throughout the body, thereby making the capillaries unduly permeable. Owing to this leakage the kidneys received water and salt at too low a level of concentration. It was important to remember, however, that opinions as to the concentration or dilution of the blood were based on venous samples, and it was possible that the low salt and water values in the venous samples of nephrotic cases were no fair indication of the arterial blood content. A third theory of nephrotic oedema had been developed mainly by Epstein, who had drawn attention to the effect of the low colloid osmotic pressure of plasma proteins owing to loss by albuminuria. But the degree of the oedema did not always correspond with the amount of decrease of plasma protein, and resolution might occur in nephrosis without an antecedent rise of colloid osmotic pressure in the blood. Professor Shaw Dunn proceeded to discuss the question of fluid retention in the light of the filtration-reabsorption hypothesis of kidney function. According to this, in the normal working of the kidney a moiety of protein-free plasma with all soluble constituents was filtered by pressure from the blood passing through the tufts. In passage down the tubules, water, chlorides, and sugar were reabsorbed to an extent which left urea and other purely excretory substances highly concentrated. By this theory the amount of filtrate is very large in proportion to the amount of urine formed, but was not large in proportion to the amount of blood passing through the kidney. The amount of fluid reabsorbed was also large, so that the kidney acted in respect of water and salt as an organ of conservation rather than of excretion. A small error by way of excess of reabsorption would result in a real retention of water and salt in the body. Professor Shaw Dunn illustrated by means of a diagram how the events in different forms of nephritis might be accounted for on the basis of this theory.

Dr. W. CRAMER described the form of nephritis which occurred in rats kept on a synthetic diet deficient in magnesium. When both calcium and magnesium salts were omitted the nephritis did not occur, and the lesion was therefore assumed to be due to a disturbance in the biological equilibrium of magnesium and calcium ions. Professor J. T. WIGHAM (Dublin) considered that oedema could not be explained on the basis of any one theory. Probably several factors were involved. Dr. JOHN GRAY (Aberdeen) pointed out that there was some reason to regard nephritis as due to some allergic effect on the glomerular capillaries, and that if this was so it might well be that the capillaries were generally damaged. In the acute and subacute varieties of nephritis increased capillary permeability was the cause of oedema. With regard to later nephritis with less active glomerular changes, one had to admit that a capillary hyperpermeability theory was no longer plausible, but here the renal retention view had to postulate an unexplained excessive tubular reabsorption. This might well occur, but evidence was lacking, and in the meantime Dr. Gray was more inclined to favour as the cause of such oedemas lowered plasma osmotic pressure, in spite of all the defects of that view. Dr. F. H. SMIRK pointed out that the percentage of protein in the plasma could be diminished by reducing the amount of protein in the diet or in animals by a process of plasmapheresis. In such cases oedema might develop despite normal renal function, provided the protein percentage in the plasma was sufficiently reduced. This was of interest as an illustration of the development of a simple hypoproteinaemic non-renal oedema.

In his reply Professor SHAW DUNN agreed that the lowering of plasma protein in subacute nephritis or nephrosis was no doubt due to the considerable total daily loss of albumin in the urine. This continued leakage of albumin from the glomeruli might be due more to continuous perfusion of these capillaries by blood than to alteration in the permeability of the capillary walls. The actual percentage of albumin in the filtrate as it left the tufts was probably very low, and the high

percentage in the urine resulted from concentration by reabsorption of fluid. The high figures for protein in oedema fluids of acute nephritis were difficult to understand: they would suggest a considerable loss of protein from the blood which was not really observed in the early stages of acute nephritis. In famine oedema, referred to by Dr. Smirk, the plasma proteins were low, as in nephrosis, but even in that case the low osmotic pressure would not by itself account for excess retention of fluid in the body. There was no doubt a polyuria, indicating good renal capacity for elimination of fluid, but the amount excreted was less than the fluid intake. Retention here might be due to insufficiency of the natural diuretic urea in the renal filtrate.

Dr. W. E. CARNEGIE DICKSON showed a series of lantern slides illustrating variability and multiplicity in certain intracranial tumours. He was followed by Dr. T. B. DAVIE (Liverpool), who considered the criteria of malignancy in cerebral tumours, and by Mr. A. B. CLERY (Dublin), who discussed the question from the surgical point of view.

SECTION OF OTO-RHINO-LARYNGOLOGY

Friday, July 28th

TUBERCULOSIS OF THE LARYNX

With the President, Sir ROBERT WOODS (Dublin), in the chair, Mr. R. SCOTT STEVENSON opened the discussion on the treatment of tuberculosis of the larynx. Quoting Sir StClair Thomson, he estimated that there were 78,819 persons in England and Wales suffering from tuberculosis of the larynx. He said that the greatest advance in treatment since the introduction of sanatoriums was the production of artificial pneumothorax. It was the patient who had to be treated rather than the larynx, and for this reason an institutional regime was greatly preferable to out-patient treatment. After stressing the importance of early laryngeal examination, he then went on to discuss the methods of treatment. Vocal rest was one of the most valuable of these, and should be rigidly enforced if possible. Local treatment by the galvano-cautery was valuable in selected cases, but he had abandoned diathermy. After a careful and detailed survey of the literature and methods employed by Strandberg, Wessely, and others, Mr. Scott Stevenson had come to the conclusion that the results achieved by artificial sunlight were little better than those obtained by vocal rest and active treatment of the main disease.

Dr. F. R. G. HEAF, dealing with the prognosis of the disease, said that whereas forty years ago tuberculosis of the larynx was always regarded as incurable, this was not so to-day. He then discussed the factors in prognosis, stressing in particular the value of serial blood examinations. If these showed (1) a rapid sedimentation rate, (2) a high monocyte count, and (3) a low lymphocyte and eosinophil count, the prognosis was bad. Other factors were: the amount and type of pulmonary disease, the character and site of the lesion, the presence or absence of ulceration, the temperament of the patient, alcoholism, excessive smoking, occupation, etc. Cases affecting the aryteno-epiglottic region were mostly hopeless, especially in the young, while cases mainly corditic and inter-arytenoid usually did better. Localized lesions were better than generalized, and in lupoid cases one could give a reasonably favourable prognosis. Finally, he stressed the points that early diagnosis, efficient treatment of the main disease, and eradication of focal sepsis were of the greatest value.

Dr. C. D. S. AGASSIZ, discussing the frequency of the disease in children, said that the amount of tuberculous laryngitis in children was grossly underestimated. He had examined eighty-six girls between the ages of 11 and 16 years and had found fifteen with laryngeal signs. About 20 per cent. of children with a positive sputum had laryngeal signs. Nearly 50 per cent. of his cases showed no symptom whatever, and would have been missed unless the condition had been looked for. The prognosis was fairly good; as a rule only general treatment was available.

Dr. P. J. KEOGH (Dublin) said that the main principles in treatment were: (1) silence, (2) the co-operation of a first-class physician, and (3) the judicious and timely use of the galvano-cautery. Chaulmoogra oil in his hands had been fairly successful; he had not had much result from nerve block, and the results of artificial sunlight needed a great deal more investigation. Mr. H. S. BARWELL stressed the importance of sanatorium treatment. He very much doubted whether whispering was any less strain than gentle talking, and did not advocate its use. Dysphagia was best treated by orthoform: anaesthesin and euphagin were also good. In the severe pain associated with flask-shaped swelling of the arytenoids and ulceration of the epiglottis, by far the best results were obtained by removal of the most painful spot with punch forceps under local anaesthesia. Injection of the superior laryngeal nerve was occasionally good, but tracheotomy should never be performed except for the most urgent dyspnoea. Dr. J. R. WHEELER (Belfast) gave some figures showing the relation between laryngitis and severe chest lesions. Phrenic avulsion, thoracoplasty, and artificial pneumothorax greatly improved the prognosis. He agreed with Dr. Heaf in commending the great value of serial blood examinations. He advocated early removal of septic foci. Mr. P. J. DEMPSEY (Dublin) agreed that forced whispering was dangerous, and that it was impossible to evaluate any particular method of treatment by itself. Lactic acid paints were bad, and so were the extensive operations formerly in favour. He never removed septic tonsils in the presence of active tuberculosis. Mr. A. D. SHARP (Leeds) disagreed on the question of septic foci, and advocated their removal; he had seen good results from local application of ultra-violet light, and thought the galvano-cautery a very useful weapon; he even employed lactic acid in certain cases. Dr. J. B. HORGAN (Cork) gave some interesting figures on the frequency of tuberculous infections of the naso-pharynx in the post-mortem room, and hoped the young practitioner would soon learn to use the laryngoscope.

Sir ROBERT WOODS (Dublin) stressed the fact that it was the chronicity of the lesion that prevented it from healing, and that active local treatment with a view to producing an inflammatory reaction was indicated. For this reason he approved of the galvano-cautery, and had been getting very good results with deep *x*-ray therapy. Dr. R. R. TRAILL (Midhurst) gave an interesting case report showing the value of artificial pneumothorax in an apparently hopeless case. He had not had good results with artificial sunlight. Mr. R. R. WOODS (Dublin) said that it was the patient that cured the disease and not the laryngologist. The best general treatment was indicated. The meeting closed with a film made by Dr. WILLIAM BEAUMONT and presented by Mr. J. F. O'MALLEY on the treatment of tuberculosis of the larynx by means of the Kromayer lamp.

Corrigendum

Owing to an error Dr. M. A. Cassidy was reported (*Journal*, August 5th, p. 247) to have said, at the discussion on essential vascular hypertension at the Section of Medicine, that: "A night urine of low specific gravity which remained fixed after the patient had drunk a pint of water was more ominous." This should have read: "A night urine of low specific gravity and a specific gravity which remained fixed at about 1010 after drinking a pint of water were more ominous."

The L.C.C. recently authorized the employment as and from July of this year of a consulting surgeon at its hospital for children at Margate and at St. Luke's Hospital, Lowestoft, to visit the hospitals as required, and to be paid for each visit two guineas for a consultation or three guineas for an operation (including consultation). It is not intended to make individual appointments, but to authorize the medical superintendents of the hospitals to call in a local specialist as need arises. It is considered that on rare occasions it may be necessary to call in a consulting physician, and provision for this has been made.

Nova et Vetera

PROFESSOR R. A. S. MACALISTER'S LECTURE: "PREHISTORIC IRELAND"

The Popular Lecture in connexion with the Annual Meeting of the British Medical Association was delivered to a very large audience in the Royal Dublin Society Hall, on July 28th, by Dr. R. A. S. Macalister, Professor of Celtic Archaeology, University College, Dublin. Dr. E. K. Le Fleming, the Chairman of the Representative Body, who presided, explained that the Popular Lecture was in the nature of a slight return which the Association gave to the people in whose city it had held its Annual Meeting, in acknowledgement of so much that it had received from its hosts.

Professor Macalister, whose lecture was illustrated by slides and maps, took his audience back to the remotest period of Irish antiquity. At the time when the hunters of the old Stone Age roamed over forest-clad Europe, Ireland, so far as was known, was for the most part covered by a thick sheet of ice, and was therefore unsuitable for human life. In point of fact, one skeleton had been discovered of recent years in a cave in Southern Ireland which might possibly belong to that early period, but for the present it might be said that the old Stone Age was unrepresented among Irish antiquities. The first ascertained evidence of existence in Ireland belonged to something like 4000 B.C. At Larne, from which port the steamers went to Stranraer, might be seen, jutting into the harbour, a spit of sand, the shape of which accounted for its name—Curran Point. At its base there was a bed of gravel, the debris of an old sea beach, now some twenty-five feet above present sea level, and interspersed in this gravel had been found a number of flint implements, the earliest known handiworks of man in Ireland. These flint implements were of a very definite type and could be assigned to a civilization which took its rise probably somewhere along the south coast of the Baltic Sea, and from there spread westward over the northern parts of Europe.

Early Spanish Influence in Ireland

The first occupants of Ireland were immigrants from Europe, and it was interesting to notice that in very nearly the same region flints had been found which indicated that their makers had had an Eastern European origin, and other flints of an entirely different character most closely corresponding with certain types found in the North of Spain. There had thus been a Spanish immigration into Ireland as well as an Eastern European immigration. It might be asked why the relics of these two immigrations were found at the same spot. The answer was that that north-eastern corner of Ireland was the only part of the country where flint was to be obtained. This was one of those curious instances in which Nature had capriciously bestowed her gifts. In the other parts of Ireland in this ancient time it would have been necessary to make implements of other stones, some of them extremely intractable, and while flint implements were generally easily recognized, it was not always easy to recognize these others. It was quite possible, therefore, that these two contending groups of people, of such widely different origin, had been in close proximity in other parts of the country, but had left no trace.

At this early period the interior of Ireland was covered by dense forests, interspersed with lakes much more extensive than anything now to be found. The forests harboured dangerous animals, like bears and wolves, and so did not present much attraction to the early settlers, who confined themselves mainly to the sea coast. As time went on the technique of the manufacture of flints improved, and another interesting fact was that of the two bodies of immigrants the Spanish influence appeared to be predominating over the Eastern European. It was this which accounted for the contrast between the antiquities of Ireland and those of England. Ireland might be described as an island of the Atlantic Ocean, Great Britain as an island of the North Sea. The antiquities of Ireland, unlike those of England, showed a close relation with those of Spain. The beautifully made lozenge-shaped spearheads were a very characteristic form of Irish flint. They were symmetrically made and carefully flattened in the middle, sometimes by chipping, at others by polishing down. That was not a common form in England, but it was a specifically Iberian form.

In the Spanish peninsula there were a great many caves which had served as human habitations in the Stone Age, and on the walls of these caves paintings had been discovered, chiefly figures of men and animals. The human figures were sometimes quite easily recognizable, but at others they were so much conventionalized that unless there were a series of them showing the gradual development of the conventional from the realistic form, one would not think of them as portraits of the human figure. Here the lecturer took his audience back to Ireland and showed a remarkable stone, found in what is now King's County—a broad flat stone, on which were marks indistinguishable from the Spanish marks. This was, with one exception, the oldest stone in Europe outside Spain, and definitely had very close affinities with the art of neolithic Spain. It indicated that a body of men of the Stone Age, between 3000 and 2000 B.C., made their way across the Bay of Biscay right into the heart of Ireland, and there indicated on a stone the fact of their arrival.

The Later Stone Age

In this new Stone Age the tools, the handiwork, and civilization generally were improving, although a knowledge of the art of working metals had not yet been reached. One evidence in Ireland of the advance of civilization was the evident trading which was taking place. Flint implements were found to have travelled from the north-east to the whole country and to Europe. For example, stone axes were found in regions in which the stone was entirely foreign to the native product. This was not possible without travel, and travel was not possible without safe conduct, which argued some form of government or social order.

Perhaps the most striking illustration of a social organization was the way in which the men of the new Stone Age combined together in large numbers for a common purpose. Here Professor Macalister showed examples of the large erections found in Ireland and other countries in the shape of gigantic burial monuments, known as dolmens, or less correctly as cromlechs. These were also found in Spain and France, and in lesser numbers in England. A dolmen was a monument which consisted of a number of stones, usually three, set upright, with a flat stone poised on the top. Some of these covering stones were of gigantic size; one of them, a short distance from Dublin, weighed seventy or seventy-five tons. It was wonderful how the men of the Stone Age could have raised and poised them, and the fact that these stones had stood for thousands of years indicated that there had been some directing mind, of an architect or an engineer, engaged in the project. The lecturer reproduced a map showing the distribution of dolmens in Ireland, which indicated that the population was still mostly concentrated along the sea coast and the large rivers, while the central plain was almost bare of monuments.

The Metal Age

Coming further along in history to about 2000 B.C. he drew attention to the distribution of metals in the country. Nature had been fairly lavish to Ireland with gold, and considerable amounts of gold had been found from time to time in the rivers of Northern Wicklow. She had also been fairly generous in copper, but extremely niggardly in tin, a very important lack, because tin was absolutely essential in the Bronze Age before a knowledge of iron had been obtained. At first, and possibly for a slightly longer time than the rest of Europe, Ireland had to make shift with copper, and the earliest copper tools found in Ireland were flat axes. At the same time, or a little later, Ireland began to exploit her supplies of gold, and lunulae, or gold ornaments worn on the breast, began to be made. Ireland had already, in this early part of the Metal Age, begun to develop a trade in gold with foreign countries. Irish merchants set out across England to the Continent. He showed a map marking places where various tools had been discovered. The flat Irish copper axe was found scattered all over Ireland, and it was also found in England, following certain geographical lines which led across to the Continent. Probably an Irish merchant travelling with his axe would lose it at some ford, and there,

thousands of years later, it was found, and indicated the trade route. At any rate, these relics lay in the line of the trade march across the neighbouring country, and Irish gold ornaments found their way to Hanover, Valognes, and other places on the Continent. Professor Macalister described five stages of evolution through which the Irish axe had passed, and said that these five stages helped one to divide the Bronze Age into appropriate periods. The history of Ireland during those five periods was very interesting. With the disappearance of the flat axe pure copper also disappeared. Irish manufacturers had somehow or other become acquainted with tin, the nearest supplies of which were in Cornwall, and probably it was from Cornwall that Irish tin came. There were certain Irish remains in that county, from which one could draw the inference that at the beginning of the Bronze Age the Irish merchants or soldiers made themselves masters of the Cornish mines and were able to exploit them for the benefit of the Irish metallurgists. But somewhere about the fourth period of the Bronze Age the Irish suddenly lost control of the tin mines, and with this they lost their foreign trade, and became themselves subject to foreign exploitation.

Professor Macalister went on to describe the tall stones that were to be found in various places in Ireland, including the one at Punchestown, fifteen feet high. The great Celtic invasion, he said, began in the years 350 to 400 B.C., when the Celts superimposed their civilization on the inhabitants of Ireland.

The lecture was listened to with great appreciation, and a hearty vote of thanks was accorded at the close.

FACTORIES AND WORKSHOPS REPORT, 1833-1932

In the preface to his report[1] for the current year, which includes a review of the years 1833–1932, Mr. D. R. Wilson, H.M. Chief Inspector of Factories, introduces readers to a series of historical reviews, prepared by members of his staff, to mark the centenary of factory legislation. These reviews of the work of the inspectorate, which are presented under the headings of employment, safety, health, welfare, truck, piecework particulars, home work, Government wool-disinfecting station, and Home Office industrial museum, are a reassuring comment on the beneficent effects on the health and welfare of an industrial people which have been obtained by a hundred years of factory law.

Taking the sectional reviews one by one we find the first (unemployment) indicates the responsibilities imposed on the earlier inspectors—the germ of our present educational system, for example, was their care—and shows how the prevention of sweated labour and long hours has now brought about reasonable conditions of work, marred only by occasional lapses. The chapter on accident prevention describes the recurrent series of problems which have to be met ; as technique in safeguarding improves, new machines, each with their special risks, are introduced, and in this branch of the subject it seems doubtful whether finality can ever be achieved. In view of the progressively higher standard of safeguarding, however, both as regards quality and extent, it can hardly be doubted that, given equal exposure to risk, fewer accidents tend to occur each year. Welfare is dealt with in another chapter ; though primarily a modern development, it is shown to have been introduced in isolated instances many years ago. The reviews dealing with the Truck Acts and the "piecework particulars" sections of the Factory Acts (both designed to ensure that the worker receives his proper wages) show that the abuses they were intended to remedy have now virtually disappeared, although supervision is still needed. Again, the history of home work and out work—systems under which work is done for an employer elsewhere than on his premises—is also surveyed, and the extent to which it has diminished in recent years is discussed. Mr. Wilson concludes with a tribute to employers and workers for helping to secure a standard of factory conditions which was long in advance of, and is still equal to, that of any other country. He states that the main functions of an inspector of to-day are instruction on matters within the law and advice on matters outside the law, rather than compulsion. After mentioning the increasing attention given by non-official bodies to discover and secure favourable conditions of work—for example, the Industrial Health Research Board of the Medical Research Council, the Industrial Welfare Society, the Institute of Labour Management, the National Safety First Association, and the National Institute of Industrial Psychology—Mr. Wilson takes a glimpse at the future, and states:

"Though the fine old Act of 1901 fortunately still operates effectively, many developments have occurred during the last thirty-two years which could not have been foreseen when it was drafted, and though it has been periodically amended by supplementary Acts since that time, there are still many anomalies, both in application and in requirements, which will call for consideration when the time arrives for further legislation. . . . The provisions in the Acts dealing with hours of employment are, in my submission [he continues], no longer in consonance with modern practice and modern tendencies. On the one hand, they permit hours of work much longer than those now usual in industry ; on the other hand, they require rigid adherence to specified time-tables and withhold the greater elasticity in arrangement of working hours which can now be justifiably claimed."

Health

In the health section the senior medical inspector, Dr. J. C. Bridge, notes the long period that elapsed before medicine was considered a necessary aid to the improvement of working conditions in industry. Two years before the passing of the Factory Act, in 1833, Dr. Thackrah had already published a book on *The Effects of the Principal Arts, Trades, and Professions*, and had turned particular attention to house painters and the need for exhaust ventilation for dust removal. But Dr. Thackrah was apparently not consulted on the legislation later introduced. After a brief outline of the conditions existing during the first forty-five years of factory legislation, Dr. Bridge describes a second period (1879–94), which marks the introduction of exhaust ventilation of injurious dusts by fan and of better sanitary conditions—both arising out of the 1878 Act. At this time there was prohibition of child employment in certain industries—for example, white lead manufacture and the mercury silvering of mirrors, dry grinding of metal and dipping of certain types of lucifer matches. The 1891 Act enabled the chief inspector to serve on the employer a notice proposing or requiring the adoption of special measures to meet cases in which machinery, processes, or type of labour were considered by the Home Secretary to be dangerous or injurious to health, and in cases where there was thought to be insufficient fresh air or too much dust. After this Act special investigation proceeded upon the dangerous materials in industry, and special rules followed for the manufacture of white lead, extraction of arsenic, enamelling of iron plates, and work on explosives and matches. Periodic medical examinations were also indicated at this time. In 1883 an Act was passed for the benefit of white lead workers, and nine years later special rules were drafted for earthenware and china workers. Arsenical poisoning is described in the annual report for 1879 and phosphorus poisoning in 1880. Anthrax excited interest in the same year. The third period (up to 1900), marked by the Act of 1895, was the occasion of compulsory notification by medical practitioners of poisoning from lead, phosphorus, and arsenic, and of cases of anthrax contracted in any factory or workshop. Washing conveniences had, moreover, to be provided, and a reasonable temperature maintained in the work-rooms. The minimum of cubic space was also fixed, and committees were set up to consider whether certain processes were dangerous. Dr. Whitelegge's appointment as chief inspector

[1] Annual Report of the Chief Inspector of Factories and Workshops for the Year 1932 (including a review of the years 1833 to 1932). London: H.M. Stationery Office. 1933. (2s. net.)

in 1896 marks a definite stage in the development of medical work of the department. About this time mercury poisoning among hatters and furriers, and gassing by carbon dioxide and hydrogen sulphide, were the subjects of inquiry, and the file-cutting and potteries industries also came under investigation. By the end of 1900 the activities of the department had revealed the main causes of industrial ill-health and diseases produced by specific toxic substances known at that time. Sanitary conditions had much improved and ventilation had greatly extended. This year was also remarkable for the report on ganister dust. The 1901 Factory and Workshop Act consolidated the various Factory Acts. The child's age for employment was raised to 12, and power was given to the Secretary of State to make rules instead of regulations. The Workmen's Compensation Act of 1906 drew attention to diseases which could properly be made a subject for compensation. During this period Dr. Legge did his classical work on the determination of lead dust in the air, and brought back from Italy Sclavo's serum for use in anthrax, while Dr. Collis began a study of injury to health due to dust. The war period had a great influence on industrial medicine, and foreshadowed the appointment of works doctors. Inquiries were pursued into jaundice from tetrachlorethane, T.N.T., and arseniuretted hydrogen, and knowledge was advanced on the aplastic anaemia of T.N.T. and benzol. The last period (1919–31) is chiefly remarkable for work on fibrosis of the lung and occupational cancer, and on other diseases arising from complex chemicals—used, for example, as solvents of cellulose and in the manufacture of synthetic compounds. In conclusion, Dr. Bridge states that it is inevitable that in an age of rapid progress modern methods, with their attendant risks, should have supplemented old methods. Thus we find spraying of paint taking the place of the brush method, and cellulose solution replacing paint—methods of working all calling for inquiry as to the existence of any special risks and the necessity for special preventive measures.

ANNUAL GENERAL REPORT

The remaining twenty-five pages of the report review, under the above heading, industrial conditions existing during the year 1932. Shipbuilding has had the worst year on record, but the hosiery and yarn-spinning trades have been more active, whilst vegetable and fruit canning, and films have greatly expanded. There has been a general decrease in accidents, though buildings under construction still show the greatest number of fatalities for one industry. As regards the dangerous trades, there has been a considerable improvement in dust prevention in work on asbestos, and satisfactory progress has been made in applying exhaust ventilation to rooms. In the building trade there has been better observance of the 1931 Building Regulations. In chromium plating the difficulty of securing provision of efficient exhaust ventilation has now been dealt with, and a high standard of compliance with regulations has been obtained. Deaths from reportable electrical accidents have been well below the preceding five-year average. Under the heading of "Health" we find a total increase over last year's figures of fourteen cases of lead poisoning—attributable wholly to an increase in ship-breaking—but a decrease in cases due to the painting of buildings. There were sixteen cases of anthrax, with one death; 131 cases, with forty-four deaths, of epitheliomatous ulceration of the skin; and a slight increase in chrome ulceration. Aniline poisoning shows a decrease, with only one severe case of anilism. One hundred and twenty-five gassing accidents were reported, eleven being fatal, ethylene chlorhydrin and hydrogen iodide (two varieties) being each responsible for one case. Dermatitis appears to continue at the same rate and from the same causes as in former years. Particulars are given of forty-two fatal cases due to asbestosis or silicosis with or without tuberculosis, while further interest is to be found in a study of trichlorethylene, used in cleaning clothes, and of other problems of research.

France

[FROM OUR CORRESPONDENT IN PARIS]

Fate of an Amateur Radiologist

The lot of the therapeutic philanthropist, who substitutes modern methods of publicity for a scientific training, is apt to be hard. Monsieur Auguste-Albert Vindevogel is a case in point. On May 31st, 1932, the medical society of Seine-et-Oise lodged a complaint against him with the authorities, whose interpretation of his motives and acts was so unsympathetic that they condemned him in March this year to ten months' imprisonment and a fine of one franc. Monsieur Auguste-Albert Vindevogel appealed against this verdict. The result of his appeal, recently published, was an augmentation of the term of imprisonment to one year, the infliction of a fine of 500 francs, not to mention the 3,000 francs he was condemned to pay to the local medical society, in addition to the costs of the appeal. The events which earned the appellant this judgement were as follows: Without possessing any medical degree or other qualification, he established himself as a therapeutic radiologist early in 1932 in a town near Paris. His material equipment included a radiographic and radiotherapeutic laboratory. Here he dealt out isolated components of the spectrum to patients who had been attracted by his advertisements. Had he limited himself to taking simple radiograms he could hardly have been condemned for the illegal practice of medicine. But his radiographic achievements were made the point of departure of various therapeutic ventures, as well as diagnoses and prognoses. He was, for example, prepared to treat fibromatous cancers in a couple of sittings. In the course of the judgement delivered against Vindevogel, it was ruled that doctors alone are qualified to give ultra-violet ray, high-frequency, and every other form of electrical and radiological treatment. It was also held that the apparatus unskilfully used by Vindevogel was capable of provoking acute or chronic radio-dermatitis, simple or pernicious anaemia, leukaemia, and necrosis of bone. It transpired in the course of this case that legislation introduced as recently as 1931 and 1932 has done much to protect the public from the unwarrantable excursions into medicine of persons like Monsieur Auguste-Albert Vindevogel.

Ephedrine in Serum Disease

In a recent communication to the Academy of Medicine, Dr. Pierre Paul Lévy drew attention to the growing frequency of unpleasant reactions to the injection of diphtheria antitoxin. At one time these reactions were rare. Now they are the rule rather than the exception. If even minor troubles are included among such reactions they occur, according to Dr. Lévy, in 80 per cent. of children and 95 per cent. of adults. Hitherto the best preventive of such reactions has been adrenaline. But it is a violent as well as a potent remedy, and its action lasts only for two or three hours. Another drawback is the necessity for giving it by parenteral injection. Now the chemical composition of ephedrine bears a certain resemblance to that of adrenaline, and asthma, which yields so strikingly to ephedrine, has many points of resemblance to serum disease. Ephedrine can be given by the mouth, and its action is less violent and more prolonged (five to eight hours) than that of adrenaline. Dr. Lévy has accordingly investigated the action of ephedrine given by the mouth before an injection of serum, and repeatedly afterwards, with a view to aborting any manifestation of serum disease. He gives one tablet an hour before an injection of serum, and for the next fortnight he gives one

tablet every eight hours. For children under the age of 4 years this tablet contains 1 cg. It contains 2 cg. in the case of children between 4 and 9, and 3 cg. in the case of children between 9 and 15. Hitherto he has seen no ill effects, however slight, from this medication. Among fifty-five children given ephedrine systematically on the above-mentioned principles there were as many as 47, or 85.4 per cent., who showed no sign whatever of serum disease. Among the remainder there was only one whose reaction to the injection was violent.

Ireland

Pre-school Infection of School Children

In the course of a paper read at the World Federation of Education Associations in Dublin, Dr. J. Farquhar Davidson (medical officer of health for Suffolk) referred to his experiences in dealing with the health of the school children in the area under his supervision, and stated his views upon the steps which were required to be taken in the treatment of children at schools. Neglect to correlate the pre-school with the actual school period was, he submitted, an error. A certain proportion of defects and diseases detected in school were the sequel of pre-school infection or illness, and non-control of the pre-school child caused many defects that required treatment later on. Supervision of the child before entry into school was urgent, for most defects developed between 2 and 5 years of age, and on the mid-phase of childhood (7 to 11) much depended. Physical conditions should therefore be placed first, and the school surroundings and curriculum should bear witness of this priority of need. Wise teaching of adolescents was next stressed, for this was the period of school life when mental and physical changes and developments of a profound type were present. If wise and proper preparation had been made in the age period of 7 to 12 this section of school life should commence with well-founded mental and physical stability. At this stage an important subsection on the art and practice of living might with advantage be included in the general teaching of hygiene. Such knowledge and understanding would obviate many of the mental and physical difficulties of the period of adolescence, and would prove of inestimable value in the future ordering of lives and conduct. The replacement of tainted knowledge by informative teaching and the common-sense control of this vitally important question formed one of the greatest mental and physical requirements of children at this age period.

Child Welfare Organization in Belfast

At a recent meeting of the Maternity and Child Welfare Committee of the Belfast County Borough Council, the committee had under consideration the number of clinic sessions at which child welfare and ante-natal work were carried out. Within the last four years the child welfare sessions have been increased from five to fourteen per week. Municipal ante-natal work was begun about eighteen months ago, and so far there have been six ante-natal sessions per week. It was decided to increase the number of ante-natal sessions to nine. The Medical Superintendent Officer of Health, Dr. C. S., Thomson, reviewed the organization at length, and explained the point of view of the British Medical Association and the nature of the fees expected under the Association's scheme. The committee decided, however, to continue as in the past, and to appoint a part-time medical officer for this purpose, the appointment to be an annual one.

Infectious Diseases in County Cork

Dr. R. Condy, county medical officer of health, in a recent report states that there has been an increase in mortality from preventable conditions, especially from enteric fever, a severe outbreak of which occurred in Kanturk Rural District, the town of Newmarket and its vicinity being chiefly affected. Improvements in water supplies and methods of sewage disposal in the town and other areas, such as Rathluire, constituted examples of urgent schemes which were nearing completion. Diphtheria was also prevalent in the early part of the year in the Bandon, Mallow, and Millstreet rural districts. The scheme of immunization had been extensively applied with beneficial results. The number of deaths from tuberculosis showed a slight decrease as compared with that of 1931, as was also the case with deaths from cancer and influenza. Provisional figures for maternal and infant mortality and the general death rate compared favourably with those of 1931, and with the average obtaining in other areas. The shocking hospital accommodation which was provided at Mallow District Hospital for patients suffering from infectious disease was a matter which had been, on more than one occasion, brought to the attention of North Cork Board of Public Health and Board of Assistance, and which was still awaiting remedial action. The fever portion of Mallow Hospital was of an entirely obsolete pattern, the wards and general equipment being in a dilapidated state. At one period of the year the wards were grossly overcrowded, with no facilities for segregation of cases, the general conditions being such as to render proper and efficient treatment of persons suffering from infectious disease a matter of great difficulty. It was to be hoped that an improvement in these conditions would be made with as little further delay as possible.

England and Wales

Radiotherapy at University College Hospital

We have received an excellent summary of the radiotherapeutic work carried out at University College Hospital during the year 1932. The material is mainly statistical, full details of the methods having been given in the report for the previous year. Owing to a breakdown in the high-tension transformer in the Stabilivolt unit, this was replaced by a new one ; and as it was considered desirable that a lower kilovoltage and milliamperage should be used, the former was reduced from 200 to 190, and the latter from 8 to 7. For medium therapy the Mecapion was in some cases used instead of the Sabouraud pastille, the dosage being thus directly determined in " r " units. With the apparatus used it was found that—with a point-to-point spark-gap of 9 inches, 2.7 milliamperes, 3 mm. Al filter, focal skin distance 30 cm.—250 r was approximately equivalent to one pastille dose. For deep therapy the unit skin dose (U.S.D.) was used, this being defined as " that dose of radiation which, when applied to the normal abdominal skin of a healthy adult, in a single exposure, lasting from one-half to one hour, will produce a bright red erythema in from seven to twenty-one days, followed by pigmentation and desquamation." The U.S.D. with 190 kilovolts and a filtration of 1 mm. Cu + 1 mm. Al was found to be equivalent to 800 international r units. This U.S.D. is 150 r greater than that used in the previous year, since a deeper erythema was taken as the standard. Special care was taken in protecting the skin of the irradiated area ; no washing with soap was allowed either during

the course of treatment or for some time afterwards, while vaseline was regularly applied as a routine procedure. It may be remarked in this connexion that in such cases it is essential that the skin should not be subjected to the action of any irritating application ; therefore soap, alcohol (eau-de-Cologne), and any ointments containing free fatty acids are absolutely contraindicated. From this point of view pure vaseline would appear to be an ideal material. The new patients treated in 1932 were 266 in number—188 malignant and seventy-eight non-malignant ; of these 122 were treated with radium and *x* rays, sixty-three with *x* rays alone, and three with *x* rays after having received radium treatment elsewhere. Very clear statistical summaries of the treatment are given, and the report contains a remarkable amount of valuable information in an unusually small space. In August, 1932, the hospital received on loan from the King's Fund 1 gram of radium, which is suitably mounted for mass therapy. Details of the treatment of eighteen cases are given, but the time during which this had been in use is obviously too short for conclusions to be drawn as to its ultimate results. Full details are, however, given of all the patients treated.

Medical Inspection of School Children

The London Education Committee, on the motion of Mr. Somerville Hastings, has been considering whether the equipment provided in medical inspection rooms for school children is adequate, whether the time allowed for inspection is long enough, and whether inspections are sufficiently frequent. In the earlier days of medical inspection no provision was made for special rooms. Now a medical inspection room is provided in all new, remodelled, and enlarged elementary schools. At the present time between one-fifth and one-fourth of the elementary schools have been provided with such rooms. A standard equipment, which includes a weighing machine, a reclining chair, and a portable lavatory, has been approved for medical inspection rooms ; school nurses attending inspections carry certain stipulated articles, and the school doctor invariably brings his stethoscope and other instruments. But authorities who have had experience of the administration of inspection in elementary schools are united in the opinion that complicated apparatus is out of place. The medical inspections in schools must be as homely as possible, and great precautions must be taken not to terrify the children. At one school, it is mentioned, the medical inspection was interrupted as the children became frightened on seeing a woman doctor habitually wearing on her forehead a mirror for reflecting light. It is considered that there would be numerous withdrawals of children from inspection if the methods and instruments of specialized examination were introduced, and it is far better practice to proceed on the assumption that the school medical inspection ascertains in the ordinary way the existence of defect, which should be specially investigated at a subsequent examination at a treatment centre or hospital. That the present methods are reasonably thorough in their results is shown, it is held, by the fact that at least one-fifth of the children leaving school at the present day have had tonsils and adenoids removed under the council's arrangement.

Certain alterations are recommended with regard to the frequency of examinations. It is felt that inspection should be held (1) on entry, (2) at or about the age of 7 (when retardation, dullness, or mental defect should be seriously considered), (3) at or about the age of 11, and (4) during the last term but one at school. This arrangement has been accepted, and will come into force from January next. The Board of Education prescribes, in addition to the entrance examination, an examination at the ages of 8 and 12. London provides an additional age-group examination—namely, one in the term before that in which the children leave the elementary school. During 1932 the number of children in London examined in the three statutory age groups was 180,905, and, in addition, 39,120 children had the extra examination in the term before leaving. Children referred for special examination by teachers and others numbered 95,855, and a further 58,870 were examined in connexion with outbreaks of infectious disease. On the average more than four-fifths of the children on the roll are seen by school doctors for some purpose or other in the course of the year. Every child also is seen some three times a year by a fully trained nurse, who picks out any requiring special examination by a doctor. It is considered advisable, however, to fix the second inspection at 7 instead of at 8 ; this would have the effect of making two inspections, instead of only one as at present, during the child's infant-school life. The third routine inspection should be at 11 instead of 12. Under the existing system the last two inspections, at the age of 12 and 13, are separated only by a short interval, and to put the first of these a year earlier would not be a disadvantage to the children and would save a good deal of work to head teachers in senior and central schools. It has been debated whether the final examination, in the term prior to that in which the child is due to leave school, should be continued, as it is not a statutory requirement. It has been for years, however, part of the London County Council's scheme, and it is thought that there are good grounds for retaining it. It gives a last opportunity of discovering and remedying physical defects. If it were omitted there would be no medical inspection between the ages of 12 and 16 years, a period which includes years very important in physical development. The examination may also have an important bearing upon the children's future employment. As for the length of time spent over the individual child, at a routine inspection session, normally lasting two and a half hours, each school doctor deals with twenty-five children, which gives an average of six minutes for each child. The school doctors are able to carry out the inspection at this rate to their own satisfaction, but any attempt to increase the number induces a feeling of racing against time. It is added that the part-time school doctor system in London enables certain sessions to be avoided which are disadvantageous to school organization. The Education Committee and the Central Public Health Committee of the council are now investigating, again on the motion of Mr. Somerville Hastings, the desirability of providing preventive and curative treatment for children between the ages of 14 and 16 years.

Dietitians in L.C.C. Hospitals

The advisability of employing dietitians in the general hospitals of the London County Council has been under consideration by the Central Public Health Committee. Information has been gathered from various hospitals and organizations which have experience in the employment of dietitians. In practically all instances these officers are in charge of a special dietetic kitchen and are responsible for "special diets" under the supervision of the medical and surgical staff of the institution. The special dietetic department is intended for the fuller development of medical and surgical research work and teaching, and is attached to the laboratories of the medical and surgical units, with its own store room, refrigerating plant, kitchen, and lecture room for the nursing staff. The departments are in charge of trained nurses with special qualifications (B.Sc. in Household and Social Science, University of London), and their duties consist of the management and organization of the special diet kitchen, the calculation of all special diets ordered, and their preparation,

cooking, and serving, the visiting of patients in the wards, instruction to out-patients and to in-patients on discharge, supervision of diabetic clinics, and teaching of nurses. The special diets ordered and prepared in the dietetic kitchen include: diabetic, ketogenic, low-protein, high-protein, liver, purine-free, high calcium, and any experimental diets which the physicians and surgeons wish to use in the carrying out of the research work for which they are responsible.

The Central Public Health Committee is of opinion that there is need for dietitians in the council's hospitals to improve not only the provision of special diets for special patients, but also the general organization of the feeding arrangements. At the present time few officers are qualified in this special work, and as a first expedient it is proposed to arrange facilities for training six candidates—State-registered nurses—at King's College of household and social science, University of London. The courses are for the duration of one year, the first six months of which are to be spent at the college and the second six months in the main kitchen and special dietetic kitchen of a hospital. The nurses, having obtained the diploma in dietetics, will be appointed dietitians to a hospital. It is stated that similar arrangements are in force at the David Lewis Northern Hospital, Liverpool, where the dietitian takes full control of the food service, plans menus, draws up special diets, and also attends the out-patients' dietetic clinic. It is also intended to take further steps to raise the general standard of feeding arrangements in the hospitals by means of the staff attached to the council's central organization. A woman officer in the public health department is to be appointed under the matron-in-chief with the title "domestic supervisor," and she will spend her time at various hospitals supervising the arrangements for the preparation and the service of meals and the general conduct of the domestic arrangements. Her salary will be £500 a year, rising to £600.

Work of Queen Charlotte's Hospital

The vital importance of ante-natal care is illustrated in the report for 1932 of the committee of management of Queen Charlotte's Maternity Hospital and Midwifery Training School, London, by the striking results obtained, the maternal mortality rate for those so safeguarded being 1.8 per thousand as against 32.9 in the unprotected, while the infant mortality rate was 22.6 as contrasted with 82.1 per thousand. The total number of in-patients during the year was 2,646; the main hospital dealt with 2,035, the Invermead auxiliary hospital with 360, and the isolation block with 251. Married women made up 2,419 of the total, and 227 were single women with their first child. It was again found necessary to continue the arrangements with the London County Council for the admission to its institutions of a certain number of patients at times when all the hospital accommodation was occupied. Apart from the cases booked, the increasing number of applicants who are necessarily refused admission for lack of accommodation emphasizes the urgent need for the provision of additional beds. The total number of patients attending the ante-natal department at the main hospital or the Kensington or Hammersmith district homes was 4,335, and there were 22,088 attendances during the year. At the infant consultation centre the number of attendances rose from 4,008 in 1931 to 4,493 in the year under review. Hospital midwives delivered 1,798 patients in their homes in the districts of St. Marylebone, Paddington, Kensington, Kilburn, and Hammersmith. The death rate for district out-patients was 0.9 per thousand. The isolation block, with its 251 patients, showed an increase of 22 on the previous year. In this respect it is noted that there has been a considerable decline in the number of private patients, and during part of the year only 65 per cent. of the beds were occupied. Although the cost of maintaining the isolation block has greatly increased the hospital expenditure, the results have proved that the work is fully justified, the deaths having fallen from 16.1 per cent. in 1931 to 11.2 in the year reviewed. Very definite progress is reported in the treatment of peritonitis. The treatment of pyelitis, which was frequently a matter of months, has been greatly accelerated, many cases being now curable in ten days to a fortnight, by means of a strict sugar-free diet. The laboratory has played an essential part in this new advance. It is mentioned in the report also, that every patient in the main hospital can now receive an anaesthetic during labour, and arrangements have been made to extend a like service to the auxiliary hospital and to the districts.

CORRESPONDENCE

Psychology and the Curriculum

Sir,—More than two thousand years ago a psychologist wrote:

"We must, then, no more ask whether the soul and the body are one, than ask whether the wax and the figure impressed on it are one, or generally inquire whether the material and that of which it is the material are one."

Galen was the last of the ancient physicians who consciously based his medical practice on that truth. As time passed, physicians tended more and more to interest themselves only in the wax, and to leave contemplation of the figure impressed to others. The physician had this good excuse—that much which Galen had said about the properties of wax was wrong, and that centuries of observation and research were needed to discover the truth—or some of the truth—about the body. In the meantime those who specialized in the nature of impressed figures had, in spite of the efforts of a certain mediaeval saint to make them realize the meaning of entelechy, made very heavy weather of the business. It *is* difficult to solve a problem if you ignore half the data. A generation or two ago the man in the street began to lose confidence in those who specialized in the forms of impressed figures. He has now begun to lose faith in those who specialize in the properties of wax. Hence the demand that medical students should be taught the principles of psychology.

To suggest, as Dr. Godwin Baynes does (*Journal*, August 5th, p. 267), that those university teachers who must try to solve the problem of instilling into wholly untrained minds unfamiliar general ideas are seeking to force young people to accept uncritically a particular technic is foolish—as foolish as it would be to charge the teacher of a class in elementary algebra with the design of inducing boys who could not solve a quadratic equation to manipulate the symbols of the infinitesimal calculus. Dr. Baynes's appeal to "the profession as a whole" is equally unwise. It is indeed the boast of our profession that we have always had individuals of our body eminent in every branch of science and learning. Psychology is no exception to this rule, as William James in the past and William Macdougall and Charles Myers in the present have proved. But the opinion of "the profession as a whole" on how the elements of psychology should be taught to medical students is about as valuable as the "opinion of the profession as a whole" on how motor car engines should be made. We can indeed decide whether our cars will run, and we may, in a generation, be able to decide whether our children are as psychologically incompetent as we are: beyond that we cannot, as a profession, go.

In the meantime, shouting "Yah! Freudian!" through the keyhole of the room where competent persons are trying to solve a difficult problem is about as helpful as the suggestion that the "seminar method"—a method exclusively applicable to well-grounded students of any subject and invaluable for them—can be used with raw youths who have left school with no knowledge whatever of the meaning of psychology.—I am, etc.,

Sedbergh, Yorks, Aug. 9th. MAJOR GREENWOOD.

Anaesthesia in Labour

SIR,—I should like to support strongly Dr. J. Elam's plea for the extended use of nitrous oxide-oxygen in labour (*Journal*, August 12th, p. 316).

It is generally agreed that the ideal anaesthetic in obstetrics should (1) provide immediate analgesia for the duration of the pains, leaving the patient unaffected between them; (2) provide complete anaesthesia during the actual delivery of the child and for any subsequent perineal repair; (3) cause no reduction in the force and frequency of the uterine contractions; (4) have no toxic effects on mother or child, even in the toxaemias of pregnancy; and (5) exert a constant effect in every case.

In the present state of our knowledge, nitrous oxide-oxygen is the technique which fulfils these requirements most closely. A simple intermittent-flow apparatus is desirable, and any fairly intelligent patient can administer the mixture to herself during the pains of the first stage of labour. When the head is beginning to pass over the perineum full anaesthesia is induced, and maintained for as long as is necessary. Dr. Elam places the average cost of gases used at 5s. per confinement. This can be materially reduced in hospital practice, Dr. J. King and Dr. J. Morgan estimating it at only 2s. (*Lancet*, August 15th, 1931).—I am, etc.,

London, N.W.8, Aug. 12th. C. LANGTON HEWER.

SIR,—Dr. John Elam's letter in the *Journal* of August 12th suggests that the use of gas and oxygen in labour has been neglected in this country, not only in private practice but also in our maternity hospitals. I think he is unduly pessimistic in his suppositions, for it is largely used, certainly in London, in many obstetric departments of the hospitals and also in the special maternity hospitals. In the wards of the Obstetrical Unit of the Royal Free Hospital, where every patient receives an anaesthetic throughout the second stage of labour, gas and oxygen given with Boyle's apparatus or the portable McKesson is the usual method for producing analgesia and anaesthesia. Here we, among other hospitals, are fortunate in having the services of a resident obstetric anaesthetist, who is paid from a fund provided by Lady Balfour of Burleigh. A paper summarizing the results of observations made in our wards on the use of various sedatives and anaesthetics is shortly to be published, and it is noteworthy that after three years' observations gas and oxygen is definitely the anaesthetic of choice.

In private practice the use of gas and oxygen for obstetrics is steadily increasing. There are several kinds of reasonably portable apparatus for sale or on hire, and if the anaesthetist is notified at the onset of labour it is not as a rule difficult for the apparatus to be transferred to the nursing home or private house in good time for the administration of the anaesthetic throughout the second stage of labour, or in some cases through the latter part of the first stage. The administration of sedatives and analgesics for the early stages of labour is usually decided upon by both the obstetrician and the anaesthetist. I consider the relief of pain in the early stages of labour leaves a wide field open for investigation.

The use of anaesthetics of any kind by midwives is a very debatable point, but I am in full agreement with Dr. Elam that gas and oxygen is a very much-less dangerous anaesthetic to put into non-medical hands than chloroform in any form.—I am, etc.,

K. G. LLOYD-WILLIAMS,
Honorary Anaesthetist to the Gynaecological and Obstetrical Unit of the Royal Free Hospital.

London, W.C.1, Aug. 15th.

Use of Quinine in Normal Labour

SIR,—With the gradual accumulation of such evidence as that of Dr. Gair Johnston (*Journal*, August 5th, p. 265) there can be little doubt that soon this method will come into general use. It cannot be denied that such evidence is, in fact, adequate to support the very high claims made.

To understand the mode of action of quinine we may recall one or two biological facts. (1) The germ plasm for the following generation is set aside at a very early stage of the differentiation of the principal cellular systems in the blastodermic vesicle. "Weismannians" maintain that it is thenceforth not subject to modification by the acquired characters of the parent organism. (2) From clinical and physiological experience also it appears that the organ primarily concerned with embryonic development—the uterus—behaves as if it were so set apart to a considerable extent from the general metabolism and interaction of the maternal organs, for in toxic pregnancy it tenaciously harbours the embryo to the grave risk of the maternal life. Equally, clinical experience shows how promptly and efficiently it responds, in expulsive power, to good hygiene during gestation. Intelligent stockbreeders are fully aware of the contrast in risks of parturition afforded in their cows and mares when stalled and when kept in the open pasture. I well recall, when a youth on the farm, the vanishing of this anxiety when the pregnant animals were turned out to grass. (I have no statistics, of course, but malpresentations seem to have been rare then.) A month could make all the difference. Corresponding with this we have the well-known case of the ease of confinement of the washerwoman, while childbirth in the African negro mother is a thing to marvel at—that is, for Europeans. Thus we see the rapid response of the uterus to favourable influences.

In quinine we have a substance with an action on the uterus which is, I believe, more conspicuous than that on any other organ, though, as I pointed out (*Journal*, July 22nd, p. 170), its mode of action in malaria is by no means fully understood yet. Though experiments on animals could easily be undertaken, the small mammals have no difficulty in parturition; hence we must rely on clinical observation in the human. But this, too, is perfectly easy. I noticed that Mr. Gordon Luker (*Journal*, July 8th, p. 58), in a discussion at the Royal Society of Medicine in this connexion—namely, prophylaxis—spoke of the high favour with which he regards quinine.

My own experience points definitely to the view that, besides its apparently direct tonic action on the uterine muscle, quinine possesses a prophylactic one against bacterial invasion. But large doses definitely militate against the building up of this resistance. It is certain that quinine given in such doses as to cause buzzing in the ears exerts its depressant action on protoplasm. All forms of protoplasm are thus affected. Metabolic activity is reduced—pharmacological evidence. Hence temperature will fall from this cause alone and so produce a fallacy in deduction from the temperature chart. This is perhaps

not generally realized. The dose must be strictly confined to what is gently stimulating. When the method outlined in previous notes on the subject has come into general use, I expect to see in textbooks a reduction of 50 per cent. in the times given as average duration for the stages of labour. Such shortening of labour will reduce the temptation, and often the necessity, for intervention, and so would prove even more " fruitful " than the publication of a list of disasters as suggested by Dr. R. Owen-Jones (*Journal*, July 29th, p. 214). Apart from the general idea that quinine is only for use in the Tropics, the stumbling-block appears to be what Naaman the Leper thought of the treatment prescribed—too simple to be credible.

The above comments are an endeavour to assist faith by explanations. When we have a substance with definite uterine action and an organ ready to do its duty by the foetus, we have a central situation which must radiate beneficently in many directions. Though the use of quinine is not mentioned in the report of the symposium on puerperal fever at Dublin, and is not given a place in two articles in the August issue of the *Post-Graduate Medical Journal*—on " Prenatal Care," and " Modern Improvements in Obstetrics "—I am confident that we shall yet hear much of the role of quinine in obstetrics.—I am, etc.,

London, W.6, Aug. 7th. W. M. HEWETSON.

Treatment of Rodent Ulcer

SIR,—The letter of Drs. Hugh Donovan and Baylis Ash in the *Journal* of August 12th (p. 314) demands comment, since the writers remark on " the certainty of cure and the finality of treatment " after surgical measures which they label as the " once and for all treatment." The origin of this slogan would be of interest.

In his article Dr. Finzi referred at some length to the large proportion of recurrences which follow the surgical treatment of rodent ulcers, and in our experience relapses after excision are not uncommon, although we are unable to say what proportion these failures represent. One of our cases of rodent ulcer had suffered in competent hands three of these " once and for all treatments " before attending for radium therapy. The early literature of this disease reveals the disappointing results of simple excision, and the frequency of uncontrollable relapses accounts for the name of " noli me tangere " applied to rodent ulcer. Just before the introduction of *x*-ray and radium therapy burning irons were used for the destruction of the early lesions, and in spite of the conspicuous scar thermal cauterization was generally considered an effective method of treatment. When a rodent ulcer does relapse after excision its progress is usually characterized by rapid spread and by marked resistance to radiotherapy. Diathermy is much less objectionable, and radio-resistant cases often respond to it. It is certain that some cases of early rodent ulcer will relapse after any form of treatment, and experience of one's own failures makes one tolerant of those of other people.

Drs. Donovan and Ash refer to the fact that rodent ulcers involving cartilage respond badly to treatment with unscreened radium plates. Most of these lesions occur on the pinna, and may be found to be of the squamous or mixed-celled type of epithelioma, but this does not explain their peculiar resistance to radium or radiotherapy of any form. Gamma-ray therapy is better than beta-ray therapy, but diathermy is more effective than either in these cases, and should follow the first failure to respond to irradiation, which, if successful, leaves a better scar.—I am, etc.,

London Hospital, E.1, Aug. 14th. R. T. BRAIN.

Suggested Operation in Tabes

SIR,—It has always appeared to me remarkable that no attempt has ever been made to apply practically the well-known fact that tactile sensibility is often reasonably preserved in cases of tabes dorsalis in which there has been an almost complete proprioceptive sensory paralysis. It is true that kinaesthetic impulses cannot pass along the degenerated fibres of the posterior columns, but is it not possible to establish artificially a consciousness of muscle and joint movements by utilizing the relatively intact cutaneous nerves and lateral columns of the cord? In other words, might we not by suitable surgery make an adjustment whereby each contraction of the ataxic patient's flexor and extensor muscles would induce a stimulation of certain cutaneous nerves, and thus supply his consciousness with information regarding the nature and degree of the movement which is taking place? The feasibility or otherwise of such an adjustment can, I think, be determined only by experiment—that is, by deliberate operation on an ataxic subject. Unfortunately, the extreme rarity of tabes dorsalis in the Tanganyika Territory has hitherto debarred me from testing the efficacy of a certain hypothetical operation which has long suggested itself to me, and which seems to be sound in principle. I am hopeful, however, that it may appeal to some of your readers as being worthy of a trial.

The operation, as I visualize it, would proceed as follows. On either side of the thigh a longitudinal, doubly pedicled skin-flap, about nine inches long, would be prepared. The edges of each flap would be sutured in such a manner as to result in the formation of a couple of genuine tubes, lined internally with skin and covered externally by subcutaneous tissue. Fourteen days later the distal attachment of each tube would be divided. One tube would then be threaded through the substance of the quadriceps extensor, while the other tube would be threaded through the substance of the hamstring muscles. In this way a skin tunnel, with sensitive walls, would be made through the extensor and flexor groups of thigh muscles. It is conceivable that each time one of these muscle groups went into contraction it would press together the walls of the skin-tube traversing it, and thus give rise to a definite cutaneous sensation, of which an intelligent patient might learn to take advantage.

—I am, etc.,

W. KERR CONNELL, M.B., Ch.B., F.R.C.S., D.T.M. and H., Medical Officer in Charge, Sewa Hadji Hospital.

Dar-es-Salaam, Tanganyika Territory, July 17th.

New Treatments for Old

SIR,—The recent interesting correspondence in the *Journal* on new methods of treatment well emphasizes the modern tendency of practitioners to get away from the conceptions of the older pharmacotherapy and to substitute in their place a quest for methods of treatment based on the successful reaction of biological functions to disease. In these methods not only are physiotherapy and biochemistry playing an important part, but applied psychology is being brought in to release obstructive psycho-physical inhibitions. The keynote of success in modern treatment is surely to be found in the capacity of the individual for biological reaction ; and, of course, individual capacity to react in the direction of health is influenced by physical, chemical, and psychological conditions.

But this correspondence also shows that, whilst success in treatment must depend on the systematic routine use in balanced proportion of physiotherapy, pharmacotherapy, biochemical methods, actinotherapy, electrotherapy, psychotherapy, and the rest, there is too much stressing of the specialist therapy to the neglect of combined treatment. What is wanted is a clearer conception of the

need for treatment in which all the agents indicated above are brought into play to enable the individual patient to react against disease to the fullest capacity of his or her inherent biological strength. As a matter of fact, we need a new word to express such a therapy of living processes, and I suggest that this is to be found in the term " biotherapy."—I am, etc.,

London, W.1, Aug. 4th. EDWIN L. HOPEWELL-ASH.

Report of Warren Fisher Committee

SIR,—Members of the medical branches of the Defence Services will no doubt be anxious to give early consideration to the proposals contained in the Report of the Warren Fisher Committee dealing with the reorganization of the Royal Naval Medical Service, Royal Army Medical Corps, and Royal Air Force Medical Service.

The Naval and Military Committee of the British Medical Association will shortly commence the detailed examination of the above-mentioned report in the light of recent pronouncements, as endorsed by the Representative Body. It will be recollected that the Council must determine whether the report now published meets the recommendations advanced in evidence before the committee as conducive to more contented services. I am sure that I am expressing the wishes of each member of that committee when I say that it would welcome communications with the Head Office dealing with this subject in a constructive manner such as might assist the committee in its deliberations. All communications on this subject should be sent to the Medical Secretary, British Medical Association House, Tavistock Square, London, W.C.1.

Copies of the above report are obtainable on application to the Stationery Office, Adastral House, Kingsway, W.C.2, price 9d.—I am, etc.,

London, Aug. 16th. F. W. GOODBODY.

Rheumatism in the Tropics

SIR,—May I point out that Dr. Rose in his letter (*Journal*, July 29th, p. 216) is not quite correct in saying that there was a correspondence on the " incidence of rheumatism and allied diseases in the Tropics." So far as I am aware there has never been a correspondence on " rheumatism and allied diseases in the Tropics." In October and November, 1932, there was correspondence on " rheumatic fever in the Tropics." In the *Journal* of June 17th there was the Report of the B.M.A. Committee on the causation and treatment of arthritis and allied conditions, and this Committee excluded from the scope of its inquiry acute and subacute rheumatism. In the same number was reported the discussion at Eastbourne on soil and climate in relation to rheumatic diseases, and there was also an article on rheumatic diseases and health insurance.

I should like further to point out that there is no disease *allied* to rheumatic fever, except in the misinterpretation of the root of the word. Rheumatoid arthritis shows Aschoff bodies, which are similar to those of rheumatic fever. The lesions of yaws and syphilis were so similar that the late Sir Jonathan Hutchinson said that yaws and syphilis were one and the same disease. Sir Aldo Castellani, however, found the *Spironema pertenue*. With rheumatoid arthritis and rheumatic fever the clinical symptoms are so dissimilar that they can hardly be said to be the same disease, though knowledge of the cause of one may expedite the discovery of the cause of the other. The geographical distribution is, I believe, the same, and I have no doubt that residence in the Tropics proves beneficial to either.—I am, etc.,

J. TERTIUS CLARKE,
Late M.O. and H.O., F.M.S.

Harrow, Aug. 3rd.

Obituary

W. H. MAIDLOW, M.D., F.R.C.S.

Ilminster, Somerset

With the death of Dr. William Harvey Maidlow of Ilminster, which occurred on July 29th after a short illness, a notable figure is removed from the medical world in the West of England. Dr. Maidlow was educated at Charterhouse and St. Bartholomew's Hospital. He qualified M.R.C.S., L.R.C.P. in 1891, becoming F.R.C.S.Eng. in the following year. He took the degree of M.B.Durham in 1892, being first in Honours and Luke Armstrong Scholar, and proceeded to the degree of M.D. in 1895. One of the most brilliant students of his year, he held the posts of house-surgeon, midwifery assistant, and assistant medical officer to the electrical department at his own hospital, and it was fully expected that he would remain in the metropolis and be appointed to the honorary staff of St. Bartholomew's. He had other views, however, and after acting for a period as resident medical officer to Taunton Hospital he joined in partnership with the late Dr. C. Munden of Ilminster, where for thirty-six years he carried on a large and exacting practice extending over a wide area. Dr. Maidlow was a fine example of a country practitioner, who kept himself fully abreast of the latest discoveries in pathology and therapeutics. He held the confidence of his patients to a remarkable degree, and his opinion was widely sought and freely given to his colleagues in Somerset, Dorset, and Devon. He was president of the West Somerset Branch of the British Medical Association in the year 1911. Cultured in every sense of the word, and widely read, he had a fund of information on many subjects outside the sphere of medicine.

G. W. CECIL HODGES, M.R.C.S., L.R.C.P.

We regret to announce the death from septicaemia, at the age of 59, of Dr. Cecil Hodges of Bridgnorth. He was the eldest son of the late Dr. George Hodges, who, seventy-five years ago, came from Ludlow to establish the practice which his son extended to an area of over one hundred square miles. Educated at Ludlow and St. George's Hospital, Dr. Cecil Hodges qualified in 1896, and returned to Cleobury North to assist, and then to succeed, his father. From that time until four days before his death—though latterly he was handicapped by ill-health—he had devoted himself to his life's work with skill and compassion. In keeping with his duties as a country practitioner Dr. Hodges took a leading part in all the organizations of village life, and was one of the few remaining doctors who combined professional activities with those of farming—a hobby which he conducted in order to indulge his intense love of all animals and of the English countryside. In his earlier days he had regularly followed the Wheatland Hounds, and never lost his affection for horses nor his antipathy for motor-cars. Latterly his activities widened, and he became president of the Shropshire Branch of the B.M.A. and of the Ludlovians Club.

A profound desire for knowledge and the isolation of his home inspired in him a great love of books. He was a source of information in all branches of antiquarian lore, and although the nebulous phraseology and conflicting theories of prehistorians confused him, he would take endless pains to assist an investigation carried out in the cause of Shropshire archaeology. He loved to explore the by-paths of history, and an old church acted as a magnet to him. He is survived by a widow and three sons, one tea-planting in India and two in his own profession.

W. A. SMITH, M.A.Oxon., M.B., M.R.C.S.

In the person of Dr. William Alexander Smith there has just passed away in Cambridge, at the ripe age of 81, a man of unusual gifts and charm. Qualified in 1880, he very shortly settled down to general practice in the village of Newport, Essex, where he remained for twenty-seven years until his retirement.

Tall, rather gaunt, and with piercing, deep-set eyes and old-fashioned military moustache, he had a striking and commanding presence—more like a general of infantry than a country doctor. But such he was, and well content to be so, though his qualities would have admirably fitted him to fill a professorial chair. His kindliness, his courtesy, his conscientiousness, his outstanding ability, and the humility which goes with great knowledge combined to make him esteemed alike by his patients and by a wide circle of friends. There was a transparent sincerity and simplicity about him, combined with a kindly humour and a shrewd judgement of men and things, that made up a singularly delightful personality. An omnivorous reader he absorbed a vast amount of learning, so that there was scarcely a subject on which he could not make an illuminating remark or raise a suggestive question. Philosophy, fiction, poetry, history, biography, archaeology, medical science, all engaged his study at every available moment. Yet he was no mere bookworm, being intensely practical, and at all times a delightful companion. His love of books occasionally led him into whimsical situations. At one time he used to go his rounds on horseback reading a book as he rode, while he and the horse have been seen by the roadside each taking a noonday "bait," while Smith read poetry aloud between mouthfuls.

Professionally he was a careful and scientific physician and an excellent surgeon. He kept himself abreast of the advancing body of medical knowledge. His opinion was valued by his colleagues and commanded respect, though always delivered with a certain modesty and hesitancy that were characteristic. Seldom dogmatic, and loathing all the arts of the cocksure charlatan, his straightforward character and sound professional knowledge enabled him to build up a large practice, extending over a wide area. Leaving Newport in 1908, he went to reside in Bristol, where he was welcomed by the scientific and literary societies of that city, and did useful work for the Ministry of Pensions. Two years ago failing health obliged him to relinquish all his activities, and later he removed to Cambridge, where he spent his last days.

W. T. WOOD, L.R.C.P., L.R.C.S.Ed.

We regret to announce the death on July 23rd, in his sixty-fourth year, at his residence, Creswell, Derbyshire, of Dr. W. T. Wood. A strong Protestant Irishman, Dr. Wood was a native of Cork, and was educated at Queen's College in that city, and at the College of Surgeons, Edinburgh, qualifying L.R.C.P., L.R.C.S.Edin., and L.M. and L.R.F.P.S.Glas. in 1894.

After a period in Birmingham and Bolsover, Derbyshire, he settled down into practice at Creswell, where he remained, except during the war, for the rest of his life. During this time he saw a mere hamlet grow into a large industrial township, and took his full share in its social, educational, and recreational developments. Locally he will be best remembered for his work in connexion with the ambulance movement, first as lecturer and then as honorary surgeon and superintendent of the local ambulance division. Although over military age he joined up with this division in September, 1914, with the rank of captain, and went to France. In February, 1915, he was attached to the 5th Battalion North Staffordshire Regiment, and served with them in the trenches. Following the battle of the Somme in 1916, Dr. Wood was transferred to the artillery, and remained on the western front until the end of the war, returning to civil life at Christmas, 1918. In later years he was made a Knight of Grace of the Order of St. John of Jerusalem. As president of the local branch of the British Legion he was a ceaseless champion of the cause of ex-soldiers, and left no stone unturned to ensure that justice should be done to the sick and disabled and to their dependants. Despite an extensive private practice he was for twenty-five years medical officer of health to Kiveton Park Rural District Council, and for twenty years to Worksop Rural District Council. In 1928 he was elected by a large majority to the Derbyshire County Council. As a member of the County Education Committee he devoted himself unreservedly to the interests of education, and was chairman of the Board of Governors of Clowne Mining and Technical Institute, a Governor of Shirebrook County Secondary School for girls, chairman of Creswell Council School managers, and a county council representative on the governing body of Chesterfield Grammar School.

He was an unsparing critic—and at the same time a keen and loyal supporter—of the British Medical Association, and his comparatively early death is a great loss to the Chesterfield Division, of which he was chairman in 1931–2. A man of independent mind and well supplied with the native instinct of opposition, he always tinctured his argument with common sense and good humour, though he could never be credited with suffering fools gladly.

THE LATE MR. HARRY MORTIMER WHARRY

Dr. G. P. CROWDEN writes: In 1930 Mr. Wharry suggested to the National Institute for the Deaf that the subject of the prescription of electric hearing aids for the deaf needed attention, and was instrumental in bringing into being a subcommittee for conducting an inquiry into the matter. Through the good offices of the late Dr. Eichholz, of the Ministry of Health, Mr. Wharry was put in touch with workers in the Department of Industrial Physiology at the London School of Hygiene and Tropical Medicine, where an investigation on parallel lines was in progress. A joint research committee was then formed, and during the next two years Mr. Wharry spent much time, not only in his consulting room and at the School of Hygiene, but also at his home testing and examining every variety and description of electrical and mechanical apparatus for the deaf. He was untiring in his efforts, and his observations rapidly led to the detection and actual assessment of defects in existing hearing aids and to suggestions for their improvement. He started a clinic at the Royal Ear Hospital and University College Hospital for the assessment of deafness and the prescription of hearing aids, on which subject he was working when his health broke down. The full fruits of Mr. Wharry's inquiries and suggestions have not yet been gathered, but without hesitation it can be said that the deaf will have reason to be grateful to him for his patient investigations, and, moreover, the manufacturers of hearing aids have already benefited by having their attention drawn to defects in existing instruments which can readily be remedied, thanks to the simple modifications and adjustments which Mr. Wharry devised.

It is a matter of the greatest regret that his pioneering work should have been brought so prematurely to a close.

Mr. ALEXANDER RICHARD ANDERSON, C.B.E., F.R.C.S., who died on July 28th at his home in Boscombe, was for many years a leading surgeon in Nottingham and the neighbouring country. The son of Colonel R. Anderson, 56th Regiment, he received his medical education at St. Bartholomew's Hospital, qualifying L.S.A. in 1876 and obtaining the M.R.C.S. a year later. In 1884 he was admitted a Fellow of the Royal College of Surgeons of

England, and shortly afterwards became a member of the surgical staff of the Nottingham General Infirmary, and in due course was elected honorary surgeon, and later consulting surgeon. He had held office as president of the Nottingham Medico-Chirurgical Society, and during the war was consultant surgeon to the Bagthorpe Military Hospital. For his war service he received the honour of C.B.E. in 1919. Mr. Anderson was for nearly thirty years a member of the British Medical Association.

The following well-known foreign medical men have recently died: Dr. LEO LANGSTEIN, extraordinary professor of children's diseases at Berlin University and director of the Kaiserin-Auguste Viktoria House for combating infantile mortality, aged 57; Professor JULIANO MOREIRA, the leading psychiatrist of Brazil; Dr. VACLAV RUBESKA, formerly professor of obstetrics and gynaecology at the Karl University, and director of the Foundling Hospital at Prague, aged 79; Dr. VICTOR MUCHA, extraordinary professor of dermatology and syphilology at Vienna, aged 56; Hofrat Professor VIKTOR RITTER VON HACKER, an eminent Vienna surgeon, aged 81; Dr. EUGÈNE EEMAN, emeritus professor of oto-rhino-laryngology at Ghent; and Dr. LUIS SAMENGO of Buenos Aires, well known for his work in the same branch of medicine.

Universities and Colleges

UNIVERSITY OF LONDON

The Right Hon. Lord Macmillan and Sir Edwin Cooper Perry, M.D., have been reappointed Crown Members of the Court for a further period of five years from October 1st.

Dr. R. A. McCance has been recognized as a teacher of biochemistry at King's College Hospital Medical School (Faculty of Science).

Dr. B. H. Stewart has been appointed a member of the King's College Delegacy for the remainder of the year ending February 28th, 1934, to fill the vacancy caused by the resignation of Sir Arnold Wilson.

Grants have been made out of the Thomas Smythe Hughes Medical Research Fund and the Beaverbrook Fund for the year 1933–4 for the following researches to be carried out at the Institution designated: To Donald Hunter, M.D., for special assistance in connexion with his study of the relationship of disordered haematopoiesis to bone disease (London Hospital). To Professor M. F. Lucas Keene, M.B., B.S., and Evelyn Everard Hewer, D.Sc., for the services of a histological technician, material, and microphotographs, if necessary, in connexion with research into the development, myelination, and connexions of the fibre tracts of the brain stem and thalamencephalon in the human foetus and infant, which is an extension of an earlier investigation in myelination (London (Royal Free Hospital) School of Medicine for Women).

Academic Diplomas in the following subjects are to be designated Academic Post-Graduate Diplomas: anthropology, archaeology, bacteriology, clinical pathology, comparative philology, medical radiology, psychology, public health, sociology and public administration, teachers'.

The following will be the syllabus in Psychology for the examination for the Diploma in Psychological Medicine for examinations held in and after 1935: Definitions and methods of investigation; cognition, conation, and affect; instinct and habit, attention, interest, and memory; the development of personality, intelligence, temperament, and character; the unconscious, the principles and methods of analytical psychology; psychological tests.

The Senate has appointed Professor W. Wright, D.Sc., M.B., Ch.B., L.R.C.P., F.R.C.S., a member of the Council of the East London College, and Dr. E. F. Rabey has been nominated as Governor of Highbury County School.

The celebration of Foundation Day in 1933 will take place on Friday, November 24th, instead of on Thursday, November 23rd.

A course of five Heath Clark Lectures, on "The Normal and Subnormal Mind," will be given by Professor C. L. Burt, D.Sc., Professor of Psychology in the University, at the London School of Hygiene and Tropical Medicine on Wednesdays, October 18th, 25th, November 1st, 8th, and 15th, at 5 p.m.

A Semon Lecture, on "The So-called Associated Paralyses of the Larynx and Pharynx (Multiple Cranial Nerve Palsy)," will be given by Professor H. Burger, Professor of Oto-laryngology and Dean of the Faculty of Medicine in the University of Amsterdam, at the rooms of the Royal Society of Medicine on Thursday, November 2nd, at 5 p.m.

The University medal at the M.B., B.S. examination for internal and external students, May, 1933, has been awarded to Albertine L. Winner (University College Hospital).

The appointment of Professor H. W. Florey, Joseph Hunter Professor of Pathology in the University of Sheffield, to the Sir William Dunn Chair of Pathology at Guy's Hospital Medical School was erroneously announced on July 27th.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD

The following awards of entrance scholarships and exhibitions have been made on the results of the Board's examinations: King's College Hospital Medical School: *Science Scholarship:* G. Beven. London Hospital Medical College: *Price Scholarship:* L. Grundstein. *Science Scholarship:* W. H. J. Baker.

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences at University College: *Entrance Scholarship:* B. Brownscombe. *Entrance Exhibitions:* G. B. Jones and J. I. P. James. *Bucknill Scholarship:* D. F. Eastcott. *Bayliss-Starling Memorial Scholarship (Physiology):* L. Young. *Cluff Memorial Prize (Anatomy, Physiology, Pharmacology, and Chemistry):* K. D. Fraser. *Ferrière Scholarshp* (tenable at University College Hospital Medical School): D. V. Davies. *Sharpey Scholarship (Physiology):* E. G. Murphy.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN

The following awards of scholarships have been made for 1933–4: *St. Dunstan's Exhibition:* R. C. Cassell. *A. M. Bird Scholarship:* A. E. Burch. *Mrs. George M. Smith Scholarship:* Y. Garland. *Special Mrs. George M. Smith Scholarships:* J. Simmons and R. Caggan. *Mabel Sharman Crawford Scholarship:* D. K. Paterson. *Dr. Margaret Todd Scholarship:* D. M. Gladwell. *Lewis Memorial Scholarship:* M. L. Penwill. *Sarah Holborn Scholarship:* A. Jones. *A. M. Bird Clinical Scholarship:* A. J. McNairn. *Alfred Langton Scholarship:* B. E. Barsby. *Ellen Walker Bursary:* B. J. Travers. *Flora Murray Bursary:* J. M. Cass. *Special A. M. Bird Bursaries:* E. J. R. Browne, J. C. Goodchild, I. H. Lamey, A. L. Musgrave, G. J. Greenhalgh.

Post-Graduate Scholarships

A. M. Bird Post-Graduate Scholarship in Pathology: D. Woodman. *Mabel Webb and A. M. Bird Research Scholarship:* U. Shelley. *Edith Pechey Phipson Post-Graduate Scholarship:* Hope Trant.

Provided there be a candidate of sufficient merit, a Paul Philip Reitlinger Prize of £30 will be awarded on December 3rd for the best essay on "Contingency." Candidates must be matriculated students of the University of not more than 25 years of age on October 1st, who have not proceeded to a degree, or passed the examinations required for a degree, in any university. Essays must reach the University not later than October 1st.

The Services

DEATHS IN THE SERVICES

Colonel Henry Davis Rowan, late R.A.M.C., died at Bedford on June 6th, aged 71. He was born on March 7th, 1862, was educated at Edinburgh, where he graduated M.B., C.M. in 1883, and entered the Army as surgeon on August 1st, 1885, becoming colonel on March 1st, 1915, and retiring on March 7th, 1919. He served on the North-West Frontier of India in the Hazara campaign of 1888, gaining the frontier medal with a clasp; and in the war of 1914–18, in Gallipoli, where he was A.D.M.S. of the 10th Division, and in France. He received the Legion of Honour, as Officer, in 1917.

Lieut.-Colonel Henry Lawrence Esmonde-White, R.A.M.C. (ret.), died at Hounslow on July 27th, aged 77. He was born on July 3rd, 1856, was educated in the school of the Irish College of Surgeons, and took the L.R.C.S.I. in 1878 and the L.K.Q.C.P. in 1879, and subsequently the M.K.Q.C.P. in 1886, and the D.P.H. of the Irish Colleges in 1906. Entering the Army as surgeon on March 6th, 1880, he became lieutenant-colonel after twenty years' service, and retired on July 3rd, 1911. He served on the North-West Frontier of India in the Chitral campaign of 1895, with the relief column, and received the Frontier medal with a clasp, and on August 5th, 1914, rejoined for service in the war of 1914–18.

Medical News

The St. Bartholomew's Hospital Old Students' dinner will be held in the Great Hall, at 7 for 7.30 p.m., on Monday, October 2nd, with Lord Horder in the chair. The honorary secretaries are Sir Charles Gordon-Watson and Mr. Reginald M. Vick.

The annual dinner of the Chartered Society of Massage and Medical Gymnastics will be held at the Connaught Rooms, Great Queen Street, on Wednesday, September 20th, at 7.30 p.m.

The Fellowship of Medicine and Post-Graduate Medical Association has arranged for the following courses to take place during September: on diseases of infants, at the Infants Hospital, Vincent Square, September 4th to 16th, to take place every afternoon ; on psychological medicine, at the Bethlem Royal Hospital, Beckenham, September 5th to 29th, on Tuesdays and Fridays at 11 a.m. ; on medicine, surgery, and the specialties, at the Westminster Hospital, S.W.1, from September 18th to 30th, to occupy the whole of every day ; on diseases of the chest, at the Hospital for Consumption, Brompton, from September 25th to 30th ; on proctology, at the Gordon Hospital, Vauxhall Bridge Road, in the afternoons, from September 25th to 30th ; on rheumatism, at the Royal Mineral Water Hospital, Bath, during the whole of Saturday, September 30th, and Sunday, October 1st. In addition to the above a special tutorial course (for men graduates only) in medicine, surgery, and midwifery has been arranged to take place from September 29th to October 3rd, inclusive, at the Connaught Hall of Residence, 16, Torrington Square, W.C.1. Intensive lectures and demonstrations will be given the whole of each day, and will deal with the clinical conditions in which recent developments have occurred. Post-graduates attending this course will reside at the Connaught Hall. Full details are now ready and can be obtained from the secretary of the Fellowship of Medicine, 1, Wimpole Street, London, W.1.

A post-graduate course in diseases of the heart and blood vessels will be held at the Broussais Hospital in Paris from October 9th to 21st, under the direction of Dr. C. Laubry. The main topic will be the new views held with regard to certain of the more important cardiac syndromes. In addition to lectures there will be opportunity for clinical work. A diploma will be awarded at the conclusion of the course. The fee is 150 francs. Further information is obtainable from Dr. H. Dany, l'Hôpital Broussais, Rue Didcot 96, Paris 14.

A post-graduate course in internal medicine has been arranged to take place in Berlin from October 2nd to 14th. The course will include clinical work and pathological and other demonstrations. Details are available on application to the office of the International Post-Graduate Courses, Kaiserin Friedrich Haus, 7, Robert Koch Platz, Berlin, N.W.7.

The Fellowship of Medicine announces that a course in infants' diseases, specially arranged for medical officers of welfare centres, members of the London Public Medical Service, and others interested in nutritional disorders and dietetics, will be given at the Infants Hospital, Vincent Square, Westminster, S.W., from September 4th to 16th. The fee for the full course is £3 3s., and the names of qualified practitioners wishing to attend the course (the number is limited to fifteen) should be sent to the secretary, 1, Wimpole Street, W.1, by September 1st.

The London County Council announces that a three-months course of lectures and demonstrations, in connexion with instruction in hospital administration for the D.P.H., will be given at the North-Western Hospital, N.W.3, and at the Brook Hospital, S.E.18, from October 2nd, on Mondays and Wednesdays at 9.30 a.m., and alternate Saturdays at a time to be arranged. These courses comply with the requirements of the revised regulations of the General Medical Council, which came into operation in 1931, and the fee for each is £3 13s. 6d. A course may, however, be taken under the previous regulations at a fee of £4 4s. Medical men desiring to attend either course must pay the requisite fee beforehand to the Medical Officer of Health, London County Council, Public Health Department (Special Hospitals), County Hall, S.E.1, giving full name and address.

The London County Council has decided that the fees to be charged in respect of courses of medical undergraduate and post-graduate instruction at hospitals for infectious diseases and small-pox shall be as follows: Course in diagnosis and treatment of fevers, £3 3s. for two-months course ; course in clinical practice and hospital administration (for candidates for the D.P.H.), £3 13s. 6d. for twenty-four demonstrations, and £4 4s. for thirty demonstrations ; course in diagnosis and treatment of small-pox (in cases in which a fee is payable), £1 1s. for three demonstrations.

King Edward's Hospital Fund for London has received the gift of freehold property to the value of about £18,000. This is to form part of the permanent capital endowment of the King's Fund, but is to be kept separate as a permanent memorial to the late William and Francis Radford from a member of the family.

During the last four years there has been a considerable increase of epidemic poliomyelitis in Germany. In 1931 there were 1,613 cases with a case fatality rate of 11.2 per cent., and in 1932, 3,735 cases with a fatality rate of 8.4 per cent. Probably many more mild and doubtful cases have been notified than formerly.

Professor August Gärtner, the doyen of German hygienists and former occupant of the chair of hygiene at Jena, has recently celebrated his eighty-fifth birthday.

The King of the Belgians has been made a doctor *honoris causa* of Strasbourg University.

A bust of the Nobel prizeman Dr. Fritz Pregl, professor of chemistry at Graz, has recently been unveiled in the hall of the University.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

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MEDICAL SECRETARY, *Medisecta Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin* ; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Stammering

"H. E." asks for suggestions for the treatment of a young man of 20, who began to stammer at the age of 5, following a long illness, during which he was treated and nursed by his parents. When 17 years of age he was sent abroad for a year, and came back practically cured ; but the stammering gradually returned, and at the present time he has great difficulty in producing any sounds at all in the home circles, though he is very much better out of them, and spends half the year at his university. His mother stammered as a child, but outgrew it.

Prophylaxis of Enteric and Cholera

Lieut.-Colonel M. S. IRANI, I.M.S. (Bombay), writes: Will any of your readers, especially in the Tropics, kindly let me know through the columns of your *Journal* his experience of a preparation called "bilivaccine" as a prophylactic against enteric or cholera. This preparation is very extensively advertised in India and is freely used by the public. My own experience has not been very encouraging.

Income Tax

Travelling Expenses of General Practitioner

"T. M." has claimed a deduction for travelling expenses (£73 1s. 2d.), and has had a letter from the inspector of taxes in which he says: "Having regard to the use of a motor car in professional work, will you say of what these travelling expenses are composed?"

*** In fact, the £73 1s. 2d. in question covers cost of petrol, oil, tyres, cleaning, repairs, insurance, and licence, and the amount seems prima facie quite reasonable. It seems to us that the inspector of taxes is assuming that it refers to something other than motor expenses—for example, long-distance train travelling—and that a simple explanation of what the item covers will satisfy him as to the correctness of the claim.

Allowance for Loss in Business

"S. B. D." is in practice and is also interested in a commercial business as a partner with his brother. In the year ending April, 1931, the business made a loss. How can he obtain relief?

*** A claim to set off the amount of his share of the loss against his aggregate income for the year in which the loss was made is competent, but in the special circumstances would not assist, because all the tax suffered for that year has already been repaid. A set-off of the 1930–1 loss from the professional earnings of that year to complete the liability for 1931–2 is not allowable because business and professional profits fall under different "cases" of Schedule D. The only available relief, therefore, is that provided by the rule which allows "S. B. D." to carry forward his share of the 1930–1 loss against his share of future profits *of the same business*.

LETTERS, NOTES, ETC.

Holidays for Factory Girls

We have received the following letter, signed on behalf of the Factory Girls' Country Holiday Fund by the Countess of Sandwich, the Bishop of London, Mrs. Louise Creighton, Rev. R. F. Horton, the Very Rev. Dr. Hertz, Lady Margaret Loch, Sir Thomas Barlow, Miss Lilian Braithwaite, and Mrs. Anne Slater.

Will you allow us to make a very urgent appeal on behalf of the Factory Girls' Country Holiday Fund? Started many years ago in Central London at Saffron Hill, it ministers now to girls and women living and working as far apart as Stratford and Battersea. A visit to one of the many Factory Girls' Clubs scattered all over London, where these girls and women assemble and bring week by week, for months, their own small contributions, often a few pence, towards a holiday ardently longed for as a rest from monotonous work and a change from the lifeless air of crowded homes, would touch the hearts of anyone more fortunate. A visit to the headquarters of the fund on a Saturday in July and August, the months in which the greater number of girls and women are sent away and come back, would convince a thorough sceptic of the real utility and value of our work. The fund aims at helping those who seek to some extent to help themselves, and at arranging a fortnight's holiday for them. This year, unfortunately, many of the girls and women, owing to lack of employment among other members of their family, cannot hope to have more than one week unless the response to our appeal is exceptionally generous. Our organization, in the course of a year, has become very complete. We have ready and waiting hundreds of homes with kindly cottagers, who will welcome their visitors and do their utmost to make them comfortable and happy. We have many experienced voluntary workers who place their services at our disposal, make all necessary arrangements, and take a friendly interest in the visitors as they come week by week. Our old subscribers have stood by us nobly through many difficult years. We are asking for more support from the kindly general public, and we do so in the confident hope that, bad as times are for most of us, they will not allow our girls and women to go without the little rest and change they need so much. Subscriptions and donations will be thankfully received and acknowledged by the honorary treasurer, Mrs. Slater, or Miss Mary Canney, 75, Lamb's Conduit Street, London, W.C.1.

Scented Ethyl Chloride

Mr. ALBERT HENNING, chairman and managing director of Hedley and Co. (Leytonstone) Ltd., writes: I have recently seen some reports relating to a new mixture of ethyl chloride for anaesthetic purposes. There will always be active people eager to paint the lily; to "improve" a car with a chromium-plated strip down the front of the radiator; to perfume the most rapid anaesthetic, and so forth. A recent foreign attempt to "improve" ethyl chloride, under a fancy name, is supported by a brochure which deserves a little gentle criticism. The new preparation is a mixture of oil, ether, valerian, and essence of camomile, with ethyl chloride. The brochure states that this combination illustrates the theory of Burgi-Treupel, according to which "the mixture of different medicaments augments their good effects but avoids harmful results." Actually, Burgi's theory is that active drugs of different pharmacological action given together increase their activity (that is, their toxicity) markedly more than the sum of their action when given separately. "Augmenter les effets heureux mais écarter les effets nuisibles" is *not* exactly the "synergism" of the Burgi theory, although a pleasing notion, especially in French. The brochure goes on to state that if the special gag-inhaler be used any crystallization and freezing of the ethyl chloride is prevented and uniform vaporization secured; that the danger of too strong a concentration of ethyl chloride is avoided, which otherwise is produced because ethyl chloride first freezes (se congèle d'abord) and then rapidly melts (se dégèle brusquement). Might I humbly remind those members of the medical profession who have forgotten most of their chemistry that ethyl chloride freezes at about −140° C. and that the ice seen on the anaesthetic mask and the patient's skin when using ethyl chloride as a general or local anaesthetic is nothing but frozen atmospheric water vapour. The rest of the brochure extols the virtues of the new preparation in terms which express exactly the normal advantages of pure ethyl chloride over other anaesthetics for dental or surgical operations. I see no harm in scenting ethyl chloride, though the psychological value of so doing may easily be exaggerated; a simple way is to drop some eau-de-Cologne round the inside of or on the ordinary mask before administration. My firm also supply scented ethyl chloride in tubes when wanted, but I do not claim this to be an improvement on pure ethyl chloride. It is just a "selling point." The essential virtue of an ethyl chloride is its purity. When pure it is a stable compound of fixed chemical composition and cannot vary in quality.

Grenfell Calendar, 1934

The Grenfell Calendar for 1934, a copy of which we have already received, is designed to fulfil the double function of calendar and engagement diary. The number of pages has been increased from twelve to fifty-two, and on each page, as in previous years, there is a reproduction of a photograph of Labrador and a quotation from Sir Wilfred Grenfell's writings. The frontispiece is an "oil-facsim" portrait of Sir Wilfred Grenfell from a painting by Bernard Gribble. Despite the increased size and usefulness of the calendar, the price (3s. 6d.) has not been advanced. The calendar is being sold to benefit Sir Wilfred's work among the English-speaking fishermen of Newfoundland and Labrador, and can be obtained from the Grenfell Association of Great Britain and Ireland, 82, Victoria Street, S.W.1.

Hobbies Exhibition at Dublin

A correspondent reminds us that there was a hobbies exhibition at the Annual Meeting at Winnipeg in 1930. The description in the *Journal* of August 12th (p. 302), of a similar exhibition held at the Dublin Meeting as an "Irish precedent" is therefore inaccurate.

Digoxin: Corrigendum

In a note on digoxin (Messrs. Burroughs Wellcome and Co.) in the *Journal* of August 12th (p. 295), it was stated that this substance is water-soluble. It should be added that digoxin is *very sparingly* soluble in water but dissolves readily in dilute alcohol.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 30, 31, 32, 33, 36, 37, and 38 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *148*.

A Paper
ON
THE PREVENTION OF ACCIDENTS AND COMPLICATIONS IN THE COURSE OF TREATMENT IN CHRONIC OSTEOMYELITIS *

BY
H. WINNETT ORR, M.D., F.A.C.S., F.A.O.A.
LINCOLN, NEBRASKA

Almost exactly sixty-six years ago—on August 9th, 1867—Joseph Lister, then professor of surgery in the University of Glasgow, spoke before the British Medical Association at a meeting in Dublin "On the Antiseptic Principle in the Practice of Surgery." No one needs to be reminded of the epoch-making character of that address. It began a revolution in the practice of surgery; lives and limbs have been saved and suffering has been alleviated beyond any possibility of computation. It is instructive to recall, however, that this revolution was a gradual one. It was not until eight years later—in 1875, at Edinburgh—that Lister, again before this Association, gave his address "On the Effect of the Antiseptic Method upon the General Salubrity of Surgical Hospitals." It was in this address that he brought together his own observations and clinical experiences, and those of a number of other distinguished teachers of surgery, as to the clinical value of asepsis and antisepsis. With your kind permission I shall endeavour, somewhat in the manner of Lister's Edinburgh address, to bring to your attention at this time a slightly different method for the employment of the "antiseptic principle" in dealing with osteomyelitis and some of the accidents and complications that have commonly attended and followed this disease.

When Lister became professor of surgery at King's College, London, in 1877, not more than three or four surgeons in London had accepted, or were employing, the antiseptic method. Not only so, but in the cdd sixty years since that time the antiseptic method as designed by Lister has been so altered that most cases of osteomyelitis, compound fracture, and other infected wounds are treated with less regard for the original antiseptic or aseptic principle than they would have been in 1870 by Lister himself. In surgical practice before the time of Lister acute infections of all kinds were the rule after injuries and surgical operations. Erysipelas, gangrene, septicaemia, and other septic complications, as well as amputations after compound fractures, were looked upon as unavoidable accidents—that is to say, as customary complications and sequelae for which there was neither prevention nor satisfactory treatment. Even now we have a set of similar, though less severe, complications of wounds and compound injuries that are looked upon as at least excusable, if not unavoidable. A large amount of the terrible wound sepsis of the great war was blamed upon the character of the soil with which wounds were contaminated in Flanders. Secondary sepsis and septicaemia, shortening after compound fractures, delay in healing, deformity, and disability, were accounted for and excused by the difficulty of treating these severe wound infections.

It is to this phase of the subject that I particularly desire to direct your attention. I am strongly of the opinion that these septic complications and their after-effects in osteomyelitic and compound injuries may, and should be, prevented by proper operative precautions, management of the patient, and after-care, and it is of a method designed to prevent and to correct acute operative and post-operative infections, septicaemia, contracture deformity, and disability that I wish to speak.

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Dublin, 1933.

Evolution of the Method

It seems inevitable that one who interests himself in the prevention or treatment of sepsis should become a disciple of Lister. So in the search for a method of treatment I turned first of all to his earlier teachings with regard to the fundamentals of the prevention of inflammation and infection. The method of treatment which I have worked out consists in a combination of the antiseptic method and of certain other technical methods which have been shown by illustrious British surgeons to be of fundamental importance in surgical practice. I refer especially to the employment in surgical practice of the natural forces of repair, as enunciated by John Hunter; the protection of the patient against irritative motion and muscle spasm, as set forth by John Hilton; the protection of the wound against chemical irritation and infection, as originally taught by Lord Lister; and the use of mechanical apparatus to secure immobilization and rest in correct position, as was advocated so long and so successfully by Hugh Owen Thomas of Liverpool and Sir Robert Jones.

It must be said that my own convictions as to the importance of combining these various factors into a plan of treatment did not crystallize until we were faced with the apparent failure of the antiseptic system during the great war. The antiseptic method had been so carefully worked out by Lister, and had been so universally and so successfully employed, that it seemed incomprehensible that it could be at fault. That we had so many bad results in infections and in compound fractures must, it appeared, have been due rather to difficulties of some other kind. During my military experience in one of the hospitals in France we suggested that bad results after compound infected fractures and in other infected wounds must result from the neglect of factors other than the antiseptic method.*

In making a study at that time to determine the reasons for our poor results in war wounds and compound fractures, I first re-read all of Lister's contributions upon this subject. Naturally I turned first of all to the Dublin address. I was struck at once with the fact that our so-called modern antiseptic practice did not conform at all to the exact rules originally proposed by Lister himself. One of the fundamentals of Lister's teaching was that we must protect and defend the wound surface not only against infection, but against injury by trauma or chemical irritation as well. Consider for a moment what we were doing during the years of 1917, 1918, and 1919 in our military hospitals. There was constant use of chemicals of all kinds in compresses, fomentations, drainage tubes, irrigations, and frequent dressings. Neither the wound nor the patient had protection or rest. Not

* *The Treatment of Orthopaedic Patients in Base Hospitals.*—The considerations involved in the treatment of war wounds in base hospitals must be made to include not only existing and imminent surgical pathology, but ultimate position and function of injured parts as well. It is these latter points which, in both civil and military surgery, operators have been prone to overlook. A bleeding or an infected wound, especially if of considerable size, makes an immediate and urgent demand upon the surgeon's attention. There has been a tremendous accumulation of evidence in this war to prove, however, that wounds of whatever size and character heal better if all the parts involved are restored immediately to and adequately maintained in as nearly as possible normal anatomical relations. The different effect of such treatment upon the patient's ultimate career should be almost too obvious to require comment. It *is a fact, however, that not only because of the stress of war conditions, but because of the failure of surgeons to interest themselves in what, for convenience, must be called the orthopaedic viewpoint, many of these patients in base hospitals for treatment or in preparation for convoy to the United States have not been dealt with adequately in this regard.* (From Memo. No. 178, Hq. Hospital Centre, Savenay, November 28th, 1918.)

only so, but organisms of all kinds were permitted to drift into the wound or were actually carried by the surgeon, his assistants, or nurses into dressing fields that should never have been disturbed at all. In addition, the splints employed in fractures and similar injuries were loosely applied, disturbed, or even removed so that wet dressings might be applied and frequently changed. Plaster-of-Paris casts, the most efficient form of immobilization dressing that we know, were fenestrated, split, bivalved, or otherwise bedevilled, so that they never were, or soon ceased to be, efficient for the purposes for which they were designed.

Altogether our methods for post-operative care were such that Lister, Hunter, Hilton, and Thomas, and their teachings, were forgotten or ignored on behalf of an operative and post-operative programme in which the patient and his wounds were not permitted suitable continuity, or asepsis, antisepsis, protection against secondary infection, or immobilization and rest in correct position. Many poor results in fractures and chronic infections were the inevitable consequence.

Its Application

In my first attempts to revise the clinical methods which appeared to be at fault, and which seemed to be responsible for many poor results, I was influenced by two principal considerations: first, that both local and general (and acute and chronic) septic complications should be provided against; and secondly, that well-understood and established measures of immobilization in correct position should be employed from the orthopaedic viewpoint. I felt that adequate fixation in casts or splints would contribute not only to the patient's general comfort, but would prevent spasmodic contracture of muscles, pain, deformity, and ultimate impaired function and disability. Happily it was soon found that the first of these demands for a different surgical therapeutic method were met to a large extent by correct and constant application of the considerations involved in the second.

After this period of study and reflection I undertook to determine the effect upon patients with acute and chronic infections of the changes in treatment that I considered would conform to this altered viewpoint. It appeared that patients with chronic osteomyelitis, having survived the acute infectious period, and having become somewhat accustomed to the organisms which they were carrying, might be safely tested first by immobilization in plaster-of-Paris casts and by having their wounds infrequently dressed. I felt that such patients, having already demonstrated a degree of acquired immunity, could protect themselves against any ordinary amount of infection that might accumulate in the wound. My application, soon after, of the same method to compound fracture, acute osteomyelitis, and other patients in whom no such built-up immunity might be assumed, was based upon a slightly different theory. This was that in such cases we should, by early drainage, débridement, and by avoiding exposure of the wounds for dressings, keep the degree of infection down to an amount that the patient could "absorb" (in the sense that one "absorbs" punishment of other kinds), and this has proved to be correct.

During 1920 and 1921, therefore, a few such patients were treated by immobilization in plaster, with long intervals between dressings. It was soon found that not only did the patients do well, but that they ceased to have complications in the way of local and general sepsis, that pain was diminished, and that a few of them actually healed in the first cast. This soon led to bolder methods. Some of the more actively infected wounds were drained, some with deformity were corrected even in the presence of active suppuration, and the same immobilization and dressing methods were employed. An improvement in results followed at once, so that as time went on compound fractures, acute osteomyelitis, soft part infections, and many other conditions were treated in this way. This method has now come to be called the "method of immobilization and rest." A high percentage of healing without complications, with prevention of deformity, and with many other advantages has thus been developed. Patients who had been dressed daily for years were found to go on to complete healing in the course of a few weeks or months with only one or two dressings, and with a minimum of pain, inconvenience, expense, and with much less than the usual incidence of acute complications, infectious sequelae, and ultimate deformity and disability.

The exact programme which was worked out for these cases now more than ten years ago is given below.

THE "ORR" METHOD IN OSTEOMYELITIS, COMPOUND FRACTURES, AND OTHER INFECTIONS

Outline

1. Immobilize patient at once in best position possible on operating table.
2. Do a thorough débridement or drainage operation if necessary.
3. Pack entire wound open with sterile vaseline gauze, using no sutures or drainage tubes.
4. Apply an extensive well-fitting plaster-of-Paris cast.
5. Do not disturb the cast, the wound, the dressings, or the injured part, except for definite complications.

The Method in Detail

1. *Preliminary*

(*a*) Secure best position of the injured limb possible by traction, manipulation, etc.

(*b*) Use the simplest and least possible number of movements in reducing fractures or in correcting deformities.

(*c*) Employ moleskin traction, pins, or ice-tongs if found to be necessary, included in the cast to maintain length and correct position.

(*d*) Do not move or manipulate inflamed or injured parts during or following the operation.

2. *The Operation*

(*a*) Make an incision or opening that will thoroughly uncover (saucerize) the infected area.

(*b*) Remove foreign material and dead or dying tissue as much as possible.

(*c*) Do not curette or damage healing and protective portions of the wound cavity. No attempt is to be made to remove all diseased or infected tissue.

(*d*) Do not remove bony or soft parts that may contribute to repair.

(*e*) Wipe out with iodine and alcohol, just as the skin was prepared, in order to give a clean field for the dressing.

3. *The Closure*

(*a*) Fill cavity with a vaseline gauze pack from the depths to the surface of the wound. Pack gently but firmly.

(*b*) Use no drainage tubes or other mechanical irritants in the wound.

(*c*) Use no chemical as a dressing at any time.

(*d*) Do not suture or cover any infected area with flaps of muscle, fascia, or skin.

(*e*) Cover with a dry, sterile, absorbent pad to take up drainage at the edges of the vaseline pad.

4. *The Splint*

(*a*) Maintain the length and position already obtained, and immobilize the affected part in such a manner that no muscle spasm or contracture can occur.

(*b*) Plaster-of-Paris, well-fitting and extensive, has been found to be most satisfactory as an immobilizing device. Its efficiency has been greatly improved by the plan following.

(*c*) Moleskin adhesive straps or skeletal fixation devices to be included in the cast will ensure fixed traction, control of fracture fragments, and comfort for the patient.

5. *The Dressing*

(*a*) Plaster-of-Paris casts are applied so as not to be fenestrated or split. In this way the temptation to inspect or dress the wound is prevented.

(*b*) Secondary dressings, when done, should be done in the operating room and aseptically.
(*c*) The injured part is not to be moved nor the wound surface to be damaged.
(*d*) Do not hesitate to employ anaesthetics for secondary dressings.
(*e*) Make late dressings as infrequent as early ones.

IMPORTANCE OF ROUTINE

In the further consideration of chronic osteomyelitis at this time it should be borne in mind that all forms of bone infection (in whatever manner they may have arisen) are under discussion. One of the too common teachings about chronic osteomyelitis, compound fractures, and, indeed, many other injuries and diseases, is that the surgeon and the method of treatment must adapt themselves to the individual patient, to the particular type of injury or disease, and to the circumstances surrounding the particular case. It is my definite opinion that such considerations interfere with proper treatment. In undertaking to develop a new method of therapy for these patients it was hoped that a plan might be found and systematized which would have a general application. It is my belief that such a plan has been found, and that the more nearly we can approximate a standard routine in dealing with these patients the better our results will be. We have learned that even bone and joint tuberculous patients with mixed infections will respond promptly to this plan of treatment, and in most cases go on in casts with infrequent dressings to as good a recovery as those who have been aspirated or drained aseptically. It is, of course, occasionally necessary to make departures for extraordinary conditions or circumstances. Speaking generally, however, it has been found possible to apply the plan of treatment described above almost without exception in dealing with all of these conditions. The prevalent notion that the individual patient and the individual surgeon must always have particular and different consideration for every case has been one of the commonest reasons for departure from established principles of treatment, and is responsible for many poor results.

With regard to the details of treatment in my method I have had hundreds of letters suggesting that this or that phase of the treatment might be modified or omitted. To all of these I have made the same reply—that the more closely we adhere to all the details the better our results will be. During the early years of my work for osteomyelitis patients I was often persuaded to leave off casts or splints, to do more frequent dressings, or in other ways to vary from my usual programme. In such cases I found that I encountered exactly those difficulties that we were so anxious to avoid. Those who do vary from this programme are quite certain to find that their patients will have pain, swelling, local or general inflammatory complications, or delayed recovery in one way or another.

CONCLUSION

I submit this discussion for your consideration in the hope that we shall be able to add something to the wonderful progress in surgery already made by many distinguished members of this Association. To review briefly what I have endeavoured to bring to your attention: adequate surgical drainage of infected areas ; the maintenance of such drainage without exposing the wound to further trauma and infection ; and prolonged protection of the wound, the injured or inflamed part, as well as the patient, against the evil effects of irritative motion, contracture deformity, and ultimate disability. These are all important functions of the attending surgeon. By such a programme the vital resources of the patient may not only be conserved but employed toward his recovery, limbs and lives may be saved, and the patients made more comfortable. They can also be taken care of at less trouble and expense than usual. If we have made progress in these directions we have made a definite contribution to this department of surgery. These features of surgical treatment and clinical results are difficult to study or to demonstrate in figures and statistical tables. We have had very few satisfactory reports of clinical results in osteomyelitis and compound fractures from our civilian clinics and hospitals. A study of the results obtained in wound infections and compound fractures from our military experience of fifteen years ago revealed many unhealed wounds, ununited fractures, and chronic infections years after the war was over. Similar figures from our civilian hospitals would show similar results. Suffering, metastatic infections, contracture deformities, incapacity for former occupations, and disability because of persistent pain do not appear in the statistical tables. I believe that we have been able to show, however, that with the simpler surgical therapeutic method I have described we have made definite improvement in these respects. Such clinical results can only be observed and recorded in general terms by surgeons and their associates on the basis of contact with patients and clinical experience. It is hoped that the plan which I have proposed will be given a trial. It is only upon the basis of such a special test that conclusions which are fair and which are scientific in the best sense may be reached.

[*Lack of space makes it impossible to print here Dr. Winnett Orr's case records and statistical tables. For the same reason the author's account of correspondence and discussions, relating to the method of treatment, and giving the experience of other surgeons, has been omitted. This additional material will be found in a reprint to be published separately.*]

THE SIGNIFICANCE OF VITAMINS IN PRACTICAL EXPERIENCE *

BY

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The task I have set myself to-day is to summarize certain evidence as to the real practical importance of vitamins in day-to-day clinical experience. First, however, I want to say how fully I appreciate the great honour which your president has paid me in asking one whose work has lain principally in the laboratory and not in the clinic to open this discussion. But let me add this, that it would be a mistake to suppose that the research worker is not interested in the immediate practical problems of the clinician. At the same time, I am only too well aware that many practitioners still regard vitamins as largely of academic interest, and suppose that correct feeding is a matter that can be left to " Nature," or " instinct," or " common sense."

If one is asked, How did our ancestors manage to get on so well before the era of vitamins, I think one can only reply that they did not. In 1730 out of all babies born in London 74 per cent. died before they were 5 years old ; in 1770 the figure had been reduced to 50 per cent. ; and by 1833 to 30 per cent. During the first quarter of the present century the death rate of infants under 1 year fell continually and steadily, from 150 per 1,000 to 70 per 1,000. It would of course be unfair to minimize the important part played by other

* Read in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Dublin, 1933.

factors, notably hygiene, in bringing about this wonderful improvement; only it does seem certain that another most important contributing cause has been the growth of the infant welfare movement, with the general adoption of improved methods of feeding. Next, what about relying on the free choice of natural foods, or on instinct? The futility of this idea becomes at once apparent when we recall that in our northern climates, particularly in many industrial districts, some degree of rickets has been almost universal—in the well-to-do classes, able to afford the proper "choice," no less than among the poor—and that no common foodstuff, not excluding milk itself, contains sufficient of the antirachitic vitamin to secure certain protection from rickets (assuming, of course, the child not to have the benefit of exposure to ultra-violet rays, in which our climate is so deficient).

Prolonged experiments carried out in my laboratory over a course of years[1](a) indicate that, contrary to the popular idea, animals have no general ability to distinguish by instinct between a diet containing and one lacking some essential dietary constituent. Only when the constituent in question produces some quite immediate beneficial response does the animal learn to discriminate in its favour. Since the effects of most dietary deficiencies are of gradual development and the protective food produces no sudden dramatic improvement, any ability to discriminate is in such cases quite out of the question, although the final result of the deficiency may be just as disastrous and often indeed fatal. Similarly, we have no evidence that a baby developing rickets acquires a special longing for cod-liver oil.

While it may be admitted that in this country certain vitamin deficiencies, such as beri-beri or pellagra, are of no immediate practical concern, it must be borne in mind that medicine knows no national boundaries, and it would be wrong to shut our eyes to the facts that no fewer than 30,000 individuals died from pellagra in one year recently in the southern parts of U.S.A., and that in the East beri-beri (including infantile beri-beri) claims its victims almost by the million. Both these diseases, like rickets, are now readily preventable by dietetic measures. The problem, in short, has become one for the administrator, the economist, and the sociologist as much as for the laboratory worker. The first point I wish to consider in detail is the prevalence of rickets, to show that it is almost inevitable unless special prophylactic measures are taken and to discuss the most suitable methods of therapy.

Prevalence of Rickets

In 1868 Gee[1] concluded that one-third of the school children of London were suffering from rickets, and in 1871 a similar figure was given for Manchester.[2] It is important to note, however, that the incidence must in reality have been considerably higher than this, since such figures related merely to the more obvious and severe manifestations: the milder and earlier rachitic changes, now readily diagnosable by *x*-ray examination, would have passed unnoticed. Coming to more recent times and more modern diagnostic technique, Lawson Dick[3] estimated in 1915 that no less than 80 per cent. of the children attending London County Council schools were rickety. Similar figures were given for Durham in 1920.[9] Sir George Newman's official report in 1929 to the Ministry of Health[11] states that "an examination carried out in London schools of 1,635 unselected five-year-old school children revealed the presence of rickets in 87 per cent." Roughly 50 per cent. of the children examined from various parts of England[4] showed some degree of rickets. Similar figures can be cited for the United States of America,[5 6 7 8] Germany,[12] France, etc.

With a slowly growing recognition of the absolute necessity of routine administration of an antirachitic agent an unmistakable improvement is becoming apparent. The crippling deformities so common at the beginning of the century are now by comparison relatively rare. It may be argued that many of the "mild cases" of rickets, detectable only by *x*-ray examination, are in fact almost physiological at a certain age or so slight as to be of little practical significance. Even so, as recently as 1919 a census of 16,000 cases of crippling in elementary school children showed that 11 per cent. were due to rickets.[13] I have not by me any very recent figures for comparison, but it is evident that there is still ample room for further improvement.

Incidence of Rickets with and without Treatment

In Table I are summarized the results of an experiment by Selkirk, Greenbaum, and Mitchell,[14] which is but typical of many carried out by numerous authors, comparing the incidence of rickets in untreated and in treated infants.

Table I.—*Incidence of Rickets in Negro Infants*

Prophylactic Treatment	Total Number of Infants in Group	Number of Cases of Rickets in Group	Rickets, per cent. Incidence
Untreated	22	17	77
Cod-liver oil	45	20	44
Irradiation plus cod-liver oil	43	9	21
Irradiation	78	15	19

Such figures could be multiplied a hundredfold (more examples are given below: see Tables II, III, and IV), and a close study of similar recent surveys should convince the disinterested student that, in the absence of special prophylactic measures, "some degree of rickets" supervenes in a very large percentage of instances, with a not inconsiderable sprinkling of cases of "severe rickets." We need not enter here into a consideration of the conditions applying in sunnier parts of the globe, where the intensity of ultra-violet radiation is sufficient to replace the vitamin D of the diet, provided the child is put out into the sunshine. But even there confinement indoors, as in the rite of purdah, often defeats the climatic advantage; and again, the diet may be lacking in adequate calcium and phosphate, which are as necessary as the vitamin itself for protection from rickety defects.

Table II.—*Prophylaxis of Rickets with Cod-liver Oil (after Gebhart, 1917)*

Treatment	Percentage showing Rickets after Three Months
Cod-liver oil	29
No cod-liver oil	70

Merits of Different Prophylactic Methods

Since we know that rickets was prevalent at a time when all babies were breast-fed, it is clear that breast milk is in itself an inadequate and uncertain antirachitic agent. This is confirmed by experimental animal feeding tests, which show that there is surprisingly little vitamin D in either human or cow's milk. As a supplement for the bottle, egg-yolk was at one time tried,[15] with a certain amount of success, but of course it is much less potent than cod-liver oil. The latter, although it has proved of immense value in the past, is in turn definitely inferior to the concentrated preparations of irradiated ergosterol now available (ostelin, radiostol, viosterol, calciferol tablets). The drawback to cod-liver oil is simply that it is sometimes difficult to reach a dose large enough to give complete protection without causing digestive upset

(Wilson[16]). Furthermore, different specimens may vary considerably in activity, whereas the "synthetic" preparation can be administered at a definite, accurately standardized level.

Many are the accounts which have appeared in the past few years emphasizing the advantages of irradiated ergosterol over cod-liver oil as a measure of wholesale prophylaxis (Table III), and a majority of workers are also agreed that it has been more completely successful than artificial sunshine baths, irradiated milk, or other forms of treatment.[17 18 19 20 21] Although there is no evidence of the prevalence of any widespread deficiency of vitamin A among the people of this country (and, indeed, milk fat itself is a fairly good source), there can be no harm, as a purely precautionary measure, in using a synthetic preparation in which vitamin A is present in addition to vitamin D ("adexolin," "radiostoleum"), in imitation of natural cod-liver oil, which, of course, contains both of these "fat-soluble factors."

TABLE III.—*Prophylaxis of Rickets (after J. H. Hess and others, 1930)*

Treatment	Number of Infants	Result after 5-8 Months' Treatment	
		Number of Cases of "Severe" Rickets	Number of Cases of "Slight" Rickets
No treatment	34	9	10
Cod-liver oil—1-3 teaspoons to 2 tablespoons a day	44	2	4
"Viosterol 100 D"—10 drops or less per day	6	0	6
"Viosterol 100 D"—10-20 drops per day	63	0	0

Dosage of Irradiated Ergosterol

The question of the most suitable prophylactic dose is of some importance. According to the early experiences (1928-9) of György,[19] Hess, Lewis, and Rivkin,[20] Sobel and Claman,[21] and others, the amount needed for full protection appeared to be "0.5 mg. of ordinary irradiated ergosterol" a day. Now, of course, specimens of irradiated ergosterol vary in potency, and results are therefore more accurately expressed, not in parts by weight, but (as has only recently become possible) in terms of the international standard. We may take it, however, that this dose of 0.5 mg. would be equivalent to about 2,500 to 5,000 international units of vitamin D—rather a high figure. For a time—after the danger of hypervitaminosis was first realized—there was a tendency for the dosage recommended to be on the low side. Alfred Hess advocated a standard dose of 10 drops a day of "100 D" (official U.S. vitamin D preparation, with 100 times the antirachitic activity of the cod-liver oil of the American standard) as sufficient to prevent any fall in blood calcium or phosphorus in the first year of life, but later[22] it was found advisable to increase the dose to 30 drops (equivalent to about 3,000 international units). J. H. Hess and co-workers[23] got inadequate protection with 10 drops or less ($\leq$ 1,000 international units), but complete protection with 10 to 20 drops (= 1,000 to 2,000 international units: see Table III). To prevent rickets in premature infants, May[24] thought it necessary to give as much as 45 to 60 drops of "100 D" (equal to about 4,500 to 6,000 international units of vitamin D) for the first ten weeks and subsequently 20 to 30 drops (= 2,000 to 3,000 international units). The *British Pharmacopoeia* (1932) suggested 1,000 to 3,000 units as the prophylactic dose for infants. On the other hand, Mellanby[25] found that 1,500 international units were quite sufficient to produce a relatively slow rate of healing in actual cases of rickets, although 3,000 units were more effective; and he considers 5,000 units to be the maximum really needed for a cure. Now it is most important, in order to avoid hypervitaminosis, not to exceed the adequate dose. There is evidence that 10,000 units is on the borderline for hypervitaminosis. Perhaps a wise compromise, therefore, until more extended reports become available, would be to suggest 1,500 units a day as the standard prophylactic dose (equivalent to about $4\frac{3}{4}$ teaspoonfuls of "good cod-liver oil"). This would apply to children of 1 to 2 years and upwards. For infants under 1 year—and there seems every reason to begin prophylaxis at an early age, say 6 weeks—the dose might start at 250 to 500 units and gradually increase to 1,500. Most cases of rickets occur in the second year of life, but everything is to be said for continuing prophylaxis for some years beyond, at least. Since the need for supplementary vitamin D seems less urgent after the second year, the dose might be kept constant at 1,500 units irrespective of the increase in body weight.

PUBLIC HEALTH MEASURES AGAINST RICKETS

From what we have already said it would appear that the administration of irradiated ergosterol is probably the most certain routine method so far available of preventing rickets. When dealing with the less intelligent class of parent, however, and also to save labour, there would seem to be some advantage in prescribing a food, such as "ostermilk" ("sunshine glaxo"), in which a standardized amount of the irradiated ergosterol has already been incorporated. Any possibility of hypervitaminosis is thereby ruled out. Another remedy is irradiated mik, but this promises to be of greater use in the future than at present, since the different preparations still vary considerably in their activities, some being relatively inactive and the different technical processes of irradiation not yet having been fully standardized. Coward[33] found that, taking the average for the different specimens of irradiated milk examined, no less than five and a half pints would be needed to provide the equivalent of a mere two teaspoonfuls of cod-liver oil. Satisfactory results, it is true, have been recorded by a number of observers in the last few years[26 27 28 29 30] (see Table IV), but others[31 32] find protection to be only partial.

TABLE IV.—*Irradiated Milk in Prophylaxis of Rickets (Schönen, 1929[34])*

Diet	Number of Children	Number of Cases of Rickets	Per Cent.
Irradiated milk	51	0	0
No irradiated milk	99	24	25

Direct irradiation of the child (ultra-violet therapy), if undertaken on a large scale, has the disadvantage of involving excessive communal organization and expense, apart, of course, from the difficulty of getting the infants to the clinic and, as Hess has pointed out, the danger of spreading infection among them when they are there. Heliotherapy, obviously enough, cannot be relied upon as a prophylactic agent in our northern climate, certainly during the winter months. We have not yet referred to an important recent innovation, halibut-liver oil, which is superior to cod-liver oil in that it may contain some ten times more vitamin D, and can therefore be easily administered at a higher level of antirachitic potency. Extensive clinical records and comparisons are not as yet available; but it seems certain, at least, that results cannot possibly be better than those yielded by the accurately standardized, concentrated solutions of "synthetic" vitamin D. The same applies to preparations now obtainable of fish-liver oils fortified with added vitamin D. In America extended trial has already been made of "yeast milk" (that is, milk obtained from cows specially fed on irradiated yeast, and having a greatly increased antirachitic potency). This remedy is simple, and needs no co-operation on the part of the mother; but, on the other hand, the dosage cannot be very accurately standardized, and it is doubtful how general its use will become.

Curative Treatment

For curative treatment irradiated ergosterol seems undoubtedly the method of choice, although it cannot be disputed that almost as good results seem often to have followed the combination of cod-liver oil with actinotherapy. As already indicated, the great advantage of irradiated ergosterol over cod-liver oil is that it can be given at so much higher a level of antirachitic potency. Cod-liver oil may sometimes prove nauseating and give rise to digestive disturbances, and, as statistics conclusively demonstrate, it frequently cannot be fed at a quite high enough antirachitic level to be fully effective. Further, its vitamin value may vary considerably from one specimen to another. It has been claimed[36] [36](a) [36](b) [36](c) that cod-liver oil is more effective than irradiated ergosterol in protecting humans when fed at the same number of rat units. This, however, in no way affects the force of the above conclusions. The explanation of the actual result may be that an equal amount of vitamin D in cod-liver oil is more completely absorbed than when dissolved in medicinal oil.

That irradiated ergosterol is in fact tending to replace cod-liver oil in clinical practice is evident from a considerable mass of literature. Hess, Lewis, and Rivkin[20] [35] reported that irradiated ergosterol was the most satisfactory method of treatment in use, and highly specific: symptoms of rickets disappeared very rapidly, even in cases in which cod-liver oil had previously proved effective ; the healing action could be detected by the naked eye within fourteen days. Wilkes and co-workers[37] obtained cures in every instance, and often more rapidly than with cod-liver oil. Aidin[38] also concluded that irradiated ergosterol was more effective, simpler, and more economical than cod-liver oil or direct irradiation ; Sobel and Claman[21] stressed the speed of action and the benefit for infants with weak digestion who are unable to tolerate fat. Schaferstein[39] had unvarying success in a series of 315 prophylactic and 225 curative cases. Further clinical reports illustrating the value of irradiated ergosterol in curative treatment have been published from all over the world.[17] [26] [40] [41] [42] [43] A suitable maximum curative dose for severe cases of rickets, say for children 1 to 2 years of age, would appear to be 5,000 international units of vitamin D a day. In the case of children under 18 months, or with milder cases of rickets, this should be reduced to, say, 3,000 units. (The dosage of 5,000 units is equivalent to 0.5 mg. of " ordinary solid irradiated ergosterol," fifteen teaspoonfuls of " good " cod-liver oil, or about 50 drops of the American " 100 D "—that is, a solution of irradiated ergosterol one hundred times as active as a standard cod-liver oil. One gram of calciferol (crystalline vitamin D separated from crude irradiated ergosterol) equals 4 grams of ordinary irradiated ergosterol, or 4,000,000 grams of " good cod-liver oil."

J. H. Hess and co-workers[23] of New York, after considerable clinical experience, advocated in 1930 a dosage of 10 to 15 drops a day of " 100 D " for mild rickets and 30 drops for severe rickets (equivalent to about 1,000 to 1,500 and 3,000 international units respectively) ; no ill effects suggestive of overdosage were seen after six to eight months' administration at this and higher levels. György[19] [44] of Heidelberg at first recommended 2 to 3 mg. of irradiated ergosterol for severe cases of rickets, but later, after further clinical experience, the dose was reduced to 1 mg. a day (this being equivalent, as near as one can judge, to some 5,000 to 10,000 international units). Hess, Lewis, and Rivkin[20] found 1 mg. to be the adequate dose for an average case of rickets. Sobel and Claman[21] give as optimum doses: for children under 1 year of age, 1 to 2 mg. of irradiated ergosterol in divided doses two or three times a day ; and for children over 1 year, 3 to 4 mg. Since, however, definite ill effects due to hypervitaminosis have been recorded with 2.5 mg.[20] (equivalent to about 1,200 to 2,500 international units) and with 4 mg.,[19] and there is independent evidence that 10,000 to 20,000 units is on the borderline of toxicity, it would appear safer to fix the maximum therapeutic (curative) dose not higher than 5,000 units (about 0.5 mg. of " ordinary irradiated ergosterol "). This is a little lower than the *B.P.* 1932 recommendation of 5,000 to 10,000 units. As already mentioned, Mellanby has more recently found that in practice 3,000 units is generally a sufficient dose. Fortunately hypervitaminosis seems less likely in actual curative treatment of rickets than in preventive treatment.

Avoidance of Hypervitaminosis D

Turning now to the question of hypervitaminosis, one finds that two extreme and opposite points of view are frequently put forward. The first is that the danger of hypervitaminosis is practically non-existent ; the second is that in view of the great risk it would be safer to avoid concentrated preparations of vitamin D altogether. Taking the latter point first, and admitting the risk, I do not think that on reflection many would agree that the benefits of a remedy should be thrown away merely because of the possibilities of misuse. It is conceded that the cure of rickets is most certain and rapid, and the right dosage is most readily administered when a concentrated synthetic preparation (irradiated ergosterol) is used. The solution to the problem then, to my mind, seems to be to take care that the directions for dosage are accurately and strictly adhered to. One would not lightly abandon the use of strychnine, for example, because the effective dose happens to be close to the overdose ; but, rather, precautions must be taken to prevent misuse. As to the precise amount to be given of any particular commercial preparation of irradiated ergosterol, I think that the directions actually set out by the manufacturers can usually be relied upon, as the materials are accurately standardized: only, once again let it be emphasized, it is advisable to insist that they be followed rigidly. It would be an advantage if the strengths of the preparations in international units were always declared and the number present in each dose as recommended. Also, doses ought to be stated in accurate measured quantities rather than as so many drops.

Those who argue that the danger of hypervitaminosis is virtually non-existent base their case on the observation that the lethal dose for a rat is as much as 100,000 times the minimal dose. This argument is misleading, as I have pointed out elsewhere,[45] and for two reasons. First, the overdose is 100,000 times the minimal dose (that is, the amount needed to produce any visible effect at all in severe rickets), which is by no means the same thing as the optimal or therapeutic dose. And, secondly, and more important, there are also differences between species to be borne in mind. Whatever may be the case for the rat, for the human the toxic is indeed quite close to the optimum curative dose. The human seems relatively much more susceptible than the rat: in spite of the great difference in body weight, the actual weight of irradiated ergosterol needed to produce hypervitaminosis is nearly the same for the human infant as for the rat. Toxic effects due quite definitely to hypervitaminosis have been recorded in human babies receiving 2.5 to 5 mg. a day of irradiated ergosterol, while according to the clinical data of the same observers,[19] [20] [22] [35] the optimum prophylactic dose of the identical preparation is about 0.5 mg. and the optimum curative dose as high as 1 to 2 mg. (that is, about one-third of the toxic overdose), and even higher doses—dangerously high—have from time to time been recommended by other workers.

Nature and Instances of Hypervitaminosis

It was first noted in Germany, by Pfannenstiel,[46] that excessive doses of irradiated ergosterol were toxic to experimental animals, and the lesions produced were

examined by Kreitmair and Moll.[47] However, these workers were unable to account for the condition thus produced; in fact, the rapid loss in weight led them to suggest that the effect might be due to an increased rate of basal metabolism. The writer and his co-workers at the Nutritional Laboratory in Cambridge were able to show that the condition was characterized by raised blood phosphate and/or calcium, and this, together with the excessive calcification of the growing bone, accompanied by calcification in certain soft tissues, could be logically contrasted with the lowered blood phosphate and/or calcium and the deficient calcification which occur in vitamin D deficiency. Hence the condition could legitimately be described as hypervitaminosis,[48 49 50 51 52] and it was shown, moreover, that it was due specifically to the vitamin D itself and not to some toxic impurity, as other writers had supposed. That the ill effects recorded clinically after exhibition of excessive amounts of irradiated ergosterol were due specifically to hypervitaminosis could not be doubted when one noted the nature of the symptoms, which were identical with certain features first recorded in experimental animals in our laboratory at Cambridge—namely, raised blood calcium or phosphate, overcalcification of bone endings, immense excretion of calcium salts in the urine, etc.

Hess, Lewis, and Rivkin,[20] giving 2.5 mg. of irradiated ergosterol a day, encountered what appear to constitute the first recorded cases of clinical hypervitaminosis. The abnormalities observed included three types of hyperphosphataemia, without apparent ill effects, and several cases of excessively calcified bone and of hypercalcaemia, two of the latter manifesting untoward clinical disturbances. György at Heidelberg relates a similar experience, using doses around 4 mg. of irradiated ergosterol. A single case of calcification in the kidney with fatal termination, apparently due to hypervitaminosis, was seen by Putschar,[53] and the following observations have also been recorded: three instances of renal lesions after vigantol[54]; renal damage after three teaspoonfuls of vigantol taken in error during one day[55]; raised blood calcium or phosphorus in normal children or adults given 5 to 10 mg.[56 57 58]; and loss of calcium by way of the urine in normal children given very large overdoses.[59] A recent fatal case is that reported by Thatcher[60] at Edinburgh, who described typical calcareous deposits in the kidney.

Mode of Action of the Vitamins

It is often said that nothing is known of how the vitamins work. This is no longer quite true. Thus, taking the vitamins in alphabetical order, we know that the primary effect of a deficiency of vitamin A is to cause a characteristic abnormality in certain cell structures, especially of mucous membrane cells and nerve cells. In vitamin B deficiency, carbohydrate metabolism cannot proceed normally and lactic acid accumulates, which, as we have shown elsewhere, causes a slowing of the heart rate,[61 62] and which in the central nervous system, as Peters[63] has worked out, is responsible for the convulsive symptoms. In vitamin C deficiency the primary failure is in the function of certain highly active cells—for example, odontoblasts, ameloblasts, etc.—and, as Fish and I[64] have shown, other changes observed are in reality merely secondary to this primary effect. Vitamin D, again, seems to have a more purely chemical action in relation to calcium and phosphate metabolism. Thus the effects of vitamins B and D appear to be most obviously "chemical" or "metabolic," while those of A and C are at first sight more noticeably "cytological," although one realizes, of course, that ultimately chemistry and cytology cannot be divorced in this facile manner, since the changes in the appearance of a cell are but the reflection of fundamental chemical changes proceeding within and around it.

Elsewhere I have described experiments confirming a detailed theory as to the mode of action of vitamin D.[45 52] The matter may be summed up as follows. Vitamin D causes an increased "net absorption" of calcium or phosphate (the two are mutually interdependent) from the intestine—that is, more calcium and phosphate are absorbed from the gut, or less are excreted back from the body into the gut. Thus the level of the phosphate and/or calcium in the blood rises and, as a purely secondary mechanical result of this, extra calcium phosphate is precipitated out into the bone. That is, the amount of calcification in the bone depends entirely on the amount of calcium and phosphorus in the blood: there is no fundamental error in the bone in rickets, but the fault is with the blood, and rickets is in this sense "a disease of the blood." If the blood phosphate and calcium can be kept at the right level sufficient bone salt is put down and so rickets does not develop, or, if it is already present, healing is brought about. This reasoning explains why in vitamin D deficiency (rickets) one has an excessive loss of phosphate or calcium in the stools, a low blood phosphate, and, in some circumstances, low blood calcium—hence an inadequate deposition of calcium salts in the bone. Whereas, in contrast, with too large doses of vitamin D we get the reverse picture—increased absorption, hypercalcaemia and/or hyperphosphataemia, and a resulting excessive degree of calcification.

Vitamin D Therapy apart from Rickets

The essential point to bear in mind about vitamin D therapy, it appears to me, is that its effect is to increase the assimilation of the food calcium and phosphate. Hence vitamin D is the proper remedy for infantile tetany, a nutritional disorder seen in association with rickets and due directly to the hypocalcaemia. Similarly, vitamin D is the specific for juvenile rickets and osteomalacia (adult rickets). Such conditions are rare in this country, but very prevalent in certain regions. In coeliac disease, since fats are not tolerated in the diet, it is particularly necessary to administer vitamin D (as irradiated ergosterol), as a safeguard against rickets. The so-called "coeliac-rickets" is not a pathological entity, as the work of Parsons[65 66] and others has clearly shown. In the case of nursing and expectant mothers extra vitamin D is essential, not so much to protect the young (any direct action on the foetus or the milk is almost negligible) as to improve the calcium assimilation *of the mother herself* and help her to replace the large amounts of minerals lost to the child or in her milk. Renal (low calcium) rickets is a non-nutritional disorder, having its pathogenesis in a renal abnormality and defective excretion of phosphate in the urine, and is not amenable to vitamin treatment.

Vitamin D and the Parathyroid

The active principle of the parathyroid (parathormone) bears a superficial resemblance to vitamin D in its effect in raising the blood calcium. Certain of the symptoms of excessive dosing of the two are similar. On these grounds it has been supposed by many writers that vitamin D acts through the intermediary of the parathyroid. Again, infantile tetany has often been regarded as due to parathyroid deficiency, with the result that parathormone has been used in the treatment of this and similar conditions. I believe this point of view to be quite fallacious and such treatment a profound mistake, except, conceivably, in an emergency, where parathormone is permissible by reason of its immediate but purely symptomatic action. I have shown that parathormone, so far from having any

vitamin D-like effect, does not influence calcium or phosphate absorption in rickety conditions, but has in fact a definitely deleterious action, aggravating the underlying error, draining still further minerals from the impoverished bones, and causing a net loss to the body as a whole. As I have pointed out,[43] the reason for the similarity of the symptoms is simply that they are secondary to the hypercalcaemia which vitamin D and parathormone both produce, although by different mechanisms.

From a practical point of view in this country vitamin D is far and away the most important of the vitamins. I had hoped to give here some brief attention to the other vitamins, but exigencies of space have precluded it. I must therefore content myself by including in the following summary merely an abridged statement of my conclusions with regard to these other factors, and ask the reader who is interested in the exact evidence on which these conclusions are based to refer to the short article printed separately.[67]

CONCLUSIONS

1. Correct nutrition cannot be left to instinct, or to the use of "natural unspoilt foods," or to a varied diet, or to a process of free selection.

2. Recent official reports show that no less than 80 to 90 per cent. of the elementary school population in London gave evidence of having had some degree of rickets, notwithstanding the decreasing severity of the disease as now met with.

3. Statistical data have been collected to show that, under our climatic conditions, unless special prophylactic measures are taken, "some degree of rickets" supervenes in a large percentage of instances with an appreciable proportion of "severe" cases, no common foodstuff containing sufficiently large amounts of the anti-rickets vitamin. Cod-liver oil has proved a sterling remedy in the past, but has the disadvantage that it may be impracticable to give enough to ensure full protection in every case. Experience shows that the most certain remedy is irradiated ergosterol. From a practical standpoint, however, it is sometimes an advantage to use a food (for example, a proprietary dried milk preparation) in which the requisite quantity of irradiated ergosterol has already been incorporated by the manufacturers. Ultra-violet therapy has also given good results, but it presents practical difficulties in the administrative direction for "wholesale" prophylaxis. Experience is limited as yet with halibut-liver oil, which is richer than cod-liver oil in antirachitic vitamin, and with fish oils reinforced with extra vitamin, but these promise to be of value for the future. The claims for irradiated milk and "yeast milk" are also discussed.

4. For curative treatment irradiated ergosterol is undoubtedly the method of choice; it can easily be given at a sufficiently high and precisely standardized level.

5. When administering irradiated ergosterol, however, it is essential to adhere strictly to the correct dose, since overdosage gives rise to hypervitaminosis. Contrary to what is often supposed, the toxic overdose for the human is close to the optimum therapeutic (curative) dose (only three to four times greater). The clinical evidence is reviewed, and a dose of 1,500 international units a day is provisionally recommended for ordinary prophylactic use, and 3,000 (or a maximum of 5,000 units) for curative treatment. Experience shows that smaller doses may be only partially protective. The minimal toxic dose for the infant is about 10,000 units. Further clinical standardization is needed.

6. The mode of action of vitamin D is discussed, and parathyroid treatment is condemned for infantile tetany and other conditions of calcium or phosphate deficiency arising from inadequate retention of food calcium and phosphate.

7. Vitamin A cannot be regarded as a general anti-infective agent. Although we have no evidence of any widespread deficiency of it in this country in any way comparable to that of vitamin D, it is still advisable to ensure that diets are adequately provided with it. The offspring receives but a moderate amount pre-natally and in the milk.

8. The effect of extra vitamin B added to the infant's diet requires further study. There is no compelling evidence to support the suggestion that the prevalence of constipation and stasis is due to lack of this factor.

9. It is essential that all infants should be dosed with adequate vitamin C (as orange juice). This is destroyed to a greater or less extent during pasteurization of milk which, however, is never a very active source.

10. Adequate nutrition is not possible for certain sections of the community under existing economic conditions; and much scientific knowledge of nutrition already won fails to gain sufficiently wide recognition or practical application.

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ON THE NERVOUS CONTROL OF ABDOMINAL BLOOD VESSELS AND VISCERA*

BY

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The problem dealt with in this communication is that concerning the role of parasympathetic and sympathetic systems in the regulation of muscular movements and of vascular conditions in the abdominal viscera. The method adopted for experimental investigation has been already described (*British Medical Journal*, 1933, i, 956). A statement made in that article was to the effect that cardio-inhibitor fibres may be found arising at a low thoracic level in the dog. Cannon apparently recognized this possibility, to judge from his description of the procedure of cardiac denervation. In man all cardiac branches are said to arise above the root of the lung. The present writer has twice unwittingly stimulated these fibres below the root of the lung in the dog, once with a fatal result.

Vagal Intestinal Control

When either vagus nerve is excited by a fairly strong current a balloon in most parts of the small intestine shows some degree of external pressure upon it, as seen by a single prolonged up-stroke of the tambour lever. This contraction may take place as a response to stimulation of one nerve only, or it may fail to occur on stimulating either nerve. There are portions of the intestine where one can predict to some extent which nerve is going to show the greater influence. Jacobi said that in the rabbit the intestinal motor effects of the vagus were confined to one side. In the dog one gets no indication of such a distribution. In this animal I have found that in the upper reaches of the gut the action of the left vagus is somewhat more pronounced than that of the right, while lower down there seems to be little difference, at any rate in certain parts. The distribution of the nerves is not uniform, and there is no sharp definition of areas of right and left preponderance. Kuré and his associates say that the numbers of parasympathetic fibres supplied to the intestine vary greatly in different dogs.

If one now proceeds to cut the splanchnic nerves the intestine will often be observed to enter immediately into spontaneous rhythmic activity, but, if not, one has only to repeat the vagal stimulus to elicit rhythmic activity, which ceases with the stimulus and can again be evoked by repeating it. The splanchnic nerve inhibits particularly the rhythmic action induced by the vagus, but the antagonism is seen in quantitative as well as qualitative respect (Fig. 1). In this figure the arrows indicate the points of excitation and show the positions of corresponding points in the records. Note that there is a reversal of the blood pressure change and increase of the intestinal and gastric responses after splanchnic section. The observation points to the constant antagonism of splanchnic tone to vagal muscular impulses. Attention has recently been drawn by Jasper and Monnier and others to the rhythmic nature of the response to a single stimulus of the crab's nerve. The well-known Ritter tetanus is a somewhat similar phenomenon. It is a feature which is masked in most simple responses. Here in the intestine is presented a good instance of masking and unmasking of the phenomenon. The fact that at a particular moment the quiescent intestine is induced by vagal excitation to enter into rhythmic activity, which ceases with or soon after the stimulation, suggests that the pneumogastric nerve is directly concerned with this form of activity, which is regarded by many observers as a purely myogenic process. Of course the evocative stimulus is iterative, but the serial contractions outlast it. From one point of view the phenomenon is not strictly comparable to that in the crab's nerve, which enables a single excitation to cause serial impulses.

Vagal contraction of the gut was annulled by atropine in two experiments before splanchnic section and in three experiments after section, and it was usually enhanced by injection of acetylcholine or pilocarpine, thus showing the true parasympathetic nature of the fibres concerned. Bayliss and Starling stated that large doses of atropine failed to paralyse the intestinal vagus, as they obtained contractions on stimulating the nerve after injection of large doses of the drug. Possibly the conditions in which those very accurate observers worked differed in some way from those of the present experiments, in which neither electrical excitation of the vagus nor acetylcholine produced any contraction after injection of atropine to the extent of 0.7 mg. per kilo. Possibly, too, we are at cross-purposes as between sympathetic and parasympathetic elements, the interrelations of which will be considered later.

In experiments performed with A. and B. Chauchard we determined the chronaxies of the gastric response and the vascular reaction (to be presently described) of the pneumogastric nerve. The gastric motor chronaxy is the greater,

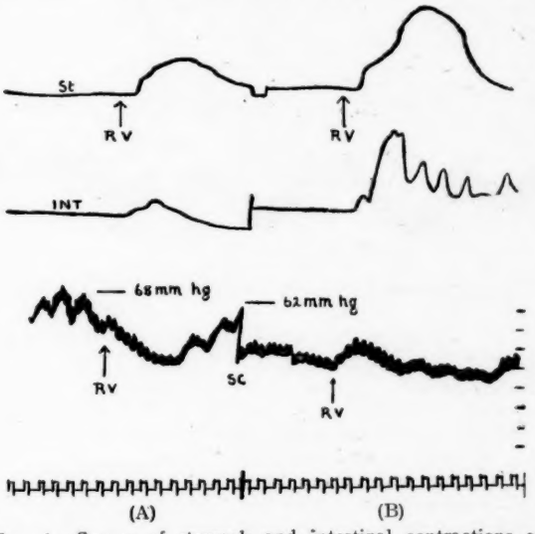


FIG. 1.—Curves of stomach and intestinal contractions and blood pressure. Excitation of right vagus (R.V.) before splanchnic section in (A), and after section (S.C.) in (B). Reversal of effect on blood pressure. Time = 5 seconds in all records, and excitation period 15 to 20 seconds.

the capacity measuring 0.5 mF., which, with a resistance of 10,000 ohms, represents a chronaxy of 2.0 σ as compared with 1.5 σ for the vascular pressor response. Section of the splanchnic nerves determined a diminution of the gastric vagal chronaxy, which demonstrates the influence of a nerve on the property of excitability of its antagonist, the quantitative change being probably determined by some modification of the effector mechanism in the end-organ.

Effects of Splanchnic Excitation

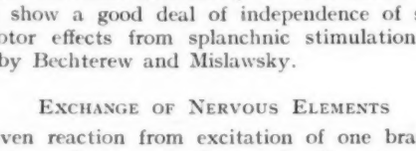
Stimulation of the cut end of the great splanchnic nerve produces inhibition of the gut, an effect which is presently increased by the influence of the adrenaline secreted. This is the generally recognized form of the splanchnic action both on stomach and on intestine, but an excitatory action is also in evidence, the converse picture of vagal inhibition, as is easily demonstrated by stimulation of separate bundles of splanchnic fibres. Two distinct types of activity are

* Read in opening a discussion in the Section of Physiology and Biochemistry at the Annual Meeting of the British Medical Association, Dublin, 1933.

evoked by these motor fibres—namely, rhythmic and tonic. The former response, an increase of the rhythmic contractions already in evidence, may be immediate or may succeed a brief inhibitory phase. The tonic or peristaltic type of response is more commonly observed in a quiescent gut. The existence of nematode worms, seen in some experiments, seems to favour this tonic response, but it occurs independently of these parasites. The circulatory or vascular conditions in the gut are supposed to have an important influence in determining activity or quiescence of the muscle. Anaemia, as determined by vaso-constriction, or bleeding, or aortic occlusion, is said to lead to inhibition and rest, while the converse proposition that congestion tends to cause contraction, is implied. The type of response must also depend to some extent on these conditions, but the effects of nervous excitation show a good deal of independence of such variations. Motor effects from splanchnic stimulation were also observed by Bechterew and Mislawsky.

Exchange of Nervous Elements

In a given reaction from excitation of one branch of the double system of nerve supply certain elements received by communication from the other branch may be responsible for the result. In the absence of precise anatomical dissection



(A) (B)

Fig. 2.—Effect of atropine negligible. R.V. excitation causes typical reaction before atropine in (A), and after in (B). At C.R.V. cervical vagus excited to show full effect of atropine.

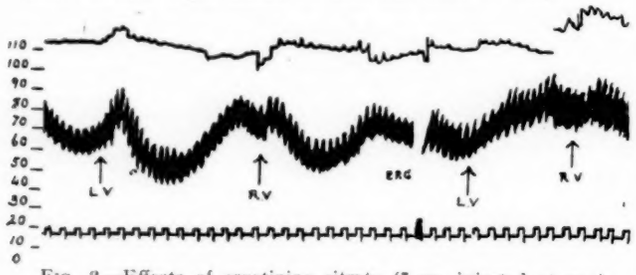


Fig. 3.—Effects of ergotinine citrate (5 cg. injected at ERG). Left (L.V.) and right (R.V.) vagal excitation. The drug caused a prolonged fall of blood pressure (folded out in the record). Renal volume on top.

and histological distinctions pharmacological tests provide a method of judging how far such communication comes into play. A discussion of the point has arisen concerning the type of vagal fibres supplying the stomach. From anatomical evidence these were said by Kiss to be sympathetic in kind, but McSwiney and Spurrell excited the intracranial vagus and got gastric motor effects. These workers could obtain no evidence physiologically of inhibitory and motor fibres being conveyed to the stomach by different elements. While they prove that the motor fibres to the stomach are parasympathetic—and I think that the action of atropine supports this view—these observers have not demonstrated that the inhibitory fibres are of the same kind. These fibres may be sympathetic. Occasionally in the atropined preparation inhibition replaces contraction of the stomach when the vagus is excited, but the evidence is not complete without the complementary test with ergot. Kuré and his co-workers are of the opinion that these inhibitory gastric fibres are of sympathetic type. The existence of sympathetic elements in the vagus trunk will presently be shown for the control of blood vessels. There is a close connexion between sympathetic and vagus in the dog.

We have already seen that the effect of excitation of the pneumogastric nerve is merely enhanced by splanchnic section, and therefore the main vagal supply to the intestine is independent, but this observation does not preclude the possibility of transference of some fibres from vagus to splanchnic. Parasympathetic fibres of spinal origin may find their way into the splanchnic, as is suggested by the work of Hasama, Kuré, and others, who found widely distributed parasympathetic fibres coming from the dorsal spinal roots. The effect of atropine on the tonic splanchnic reaction of the gut was a diminution without abolition. Further tests with atropine and ergot are necessary to determine the nature of the nerve fibres producing the response. The mixing of elements of the two systems will be referred to again.

Vascular Effects

The vascular effects obtained on stimulating the peripheral vagus have been previously described (loc. cit.). The hypotensive reaction is the characteristic one for fairly strong stimuli on both sides. In a few cases the pressor phase was more marked than the depressor one. With a galvanic current or a weak induced current the pressor effect alone is common, and occasionally no response occurs with such a current. The latent period of the hypotensive phase depends on the duration of the first phase, but when the former occurs alone the delay is about seven to ten seconds. Atropine does not annul the reaction, although the depressive effect is sometimes slightly diminished by large doses of this drug (Fig. 2). This vascular response was not intensified by injection of vagotrope sub-

Fig. 4.—Effects of ergotoxine (0.5 mg. and 1.5 mg. at intervals). The vascular reaction is gradually annulled.

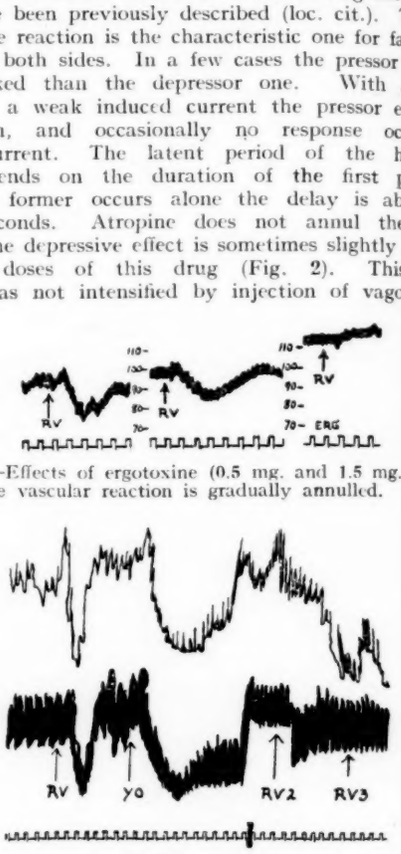


Fig. 5.—Effect of yohimbine (12.5 mg.) at second arrow mark; depressor action of vagus R.V.1, very feeble at R.V.2, and lost at R.V.3. Renal volume on top.

stances like pilocarpine and acetylcholine, but it was definitely annulled in several tests by injection of sympathetic paralysants, ergotinine citrate (Fig. 3), ergotoxine (Fig. 4), and yohimbine (Fig. 5). These drugs had a much more marked effect in abolishing hypotension than hypertension. This observation shows a certain degree of dissociation between the two phases as possible.

Effect of Splanchnic Section

After section of the splanchnic nerves the vascular reaction to vagal excitation disappears completely or is considerably modified. In some seven out of ten experiments in which the characteristic rise and fall of pressure occurred on stimulating the nerve, splanchnic section caused abolition of the depressive phase (Fig. 1). In experiments performed in the laboratories of the Sorbonne, where the galvanic stimulus was mainly employed, we obtained most often the pressor phase only, which disappeared in about half the cases when the splanchnic nerves were severed. In a few instances we were able to measure the chronaxy of the reaction before and after section. In my own separate experiments this pressor phase persisted in a majority of the tests on splanchnic section, whereas in practically all of them the hypotensive effect disappeared. In two experiments in which the vagal response was almost purely hypotensive before section it was reversed after it (Fig. 1). The significance of these observations will be referred to again. For the time being I conclude that there are hypertensive and hypotensive fibres

in the vagus nerve, and shall proceed to give an account of the attempts made to ascertain their seat of action. Of course, an objection may be raised to this form of investigation on the ground that strong faradic stimulation is abnormal, but the same must hold for any form of artificial excitation. So long as we demonstrate by any means the presence of elements with a certain form of activity, it is not unreasonable to infer that they have a purpose in the economy which can be evoked by some natural agency.

ONCOMETRIC RECORDS

The volume of the spleen showed no change other than a passive one, corresponding to variations of blood pressure. Masuda observed similar passive changes in this organ after vagal stimulation in the neck. He observed no change of volume when the blood pressure change was compensated. Intestinal volume in two records underwent slight increase as a result of vagal excitation (right)—it was in a loop of jejunum—and a passive diminution with left vagal hypotention. Other parts of the intestine showed mostly a passive diminution. In all these experiments the hypotensive vascular response was in evidence, and judging by these results it seemed that intestinal vaso-dilatation was not enough to account for it, but we have to consider the possibilities of limited areas being affected and of our missing these in a particular experiment. Vaso-dilatation seems to occur in certain portions of the intestine, which are not the same for each nerve. Bunch stated that no vaso-dilator action of the vagus was observed in the intestine of rabbits and cats. In dogs, he said, peripheral vagus stimulation "may, in certain circumstances, give rise to vaso-dilatation of intestinal vessels."

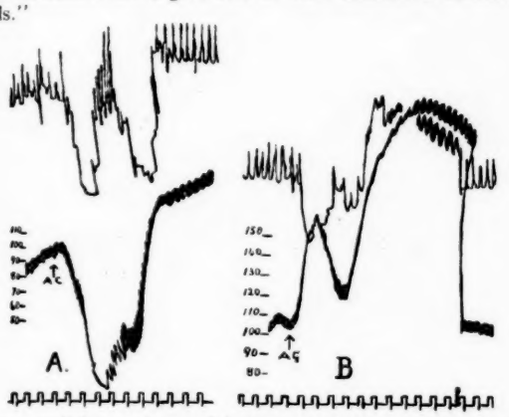


FIG. 6.—Effects of acetylcholine. A before and B after injection of atropine at interval. Readjusted levels in B. Renal volume above.

A somewhat intriguing feature of vagal activity is the alteration which occurs in renal volume. This showed increase after excitation of the pneumogastric in a few experiments. In some others it showed a well-marked decrease which was independent of pressure change. In some pronounced instances of shrinkage due to excitation of the nerve it was evoked several times when the hypotension was fully compensated. Béco and Plumier showed that excitation of the vagus caused diminution of renal volume. Tournade and his associates repeated their experiments and observed similar results; Rose Bradford had previously demonstrated the existence of both vaso-dilator and vaso-constrictor fibres in the renal splanchnic nerves. Hamet observed that section of the vagus led to diminution of renal volume, a change which he ascribed to the cutting off of afferent regulating impulses running up in the trunk of the nerve.

ACTION OF DRUGS

Atropine had little or no effect on the renal constrictor response to vagal excitation. The action of acetylcholine in this connexion seems to me to be of much interest. In doses up to 0.2 mg. per kilo acetylcholine caused, independently of electrical excitation, the usual hypotensive effect, and this was accompanied by immediate renal shrinkage (Fig. 6), which was followed by a phase of enlargement, and on this shrinkage occurred again. Atropine was then injected, and in a few minutes the previous dose of acetylcholine was repeated. The vascular action of this drug was now reversed; it became markedly hypertensive, while the shrinkage of renal volume took place as before. Feldberg and Minz[9] obtained a pronounced rise of blood pressure in the pithed atropined cat from injection of acetylcholine, due, they say, to its action on splanchnic blood vessels. No special renal constriction is referred to. Hirose injected acetylcholine into intestinal, renal, and other arteries, and concluded that vaso-constriction occurred, as a rise of general blood pressure soon followed. That acetylcholine is a strong stimulant of sympathetic fibres is at once evident from its use after atropine. In strong dose it has both a direct and an indirect action, the latter arising apparently from the production of adrenaline. It has a double action on the kidney; vaso-constriction is evident in the early phase, then vaso-dilatation succeeds, and alternating periods of expansion and contraction occasionally last some time afterwards. The stimulating action of acetylcholine on sympathetic fibres was also observed by McMichael. He said it was of slow onset. Once the vagus is annulled, however, it is quickly in evidence; the sympathetic is at first masked by the parasympathetic action.

DISCUSSION OF RESULTS

The disappearance of vagal hypotension after splanchnic section suggests at first sight that the vagal depressor fibres pass into the splanchnic system, but there are other ways by which the effect might be explained. The influence of the vagus in causing hypotension may be due to the counteraction of splanchnic vascular tone. When this is annulled by section of the nerves and a fall of pressure occurs, then if the mechanism be as suggested no further fall of pressure should arise with vagal stimulation. Section, however, does not always lead to a fall of pressure, or the fall, if it takes place, is quickly compensated. In such a case vascular tone is still in evidence, but vagal excitation does not affect it. The vagal hypotensive reaction shows a tendency to recover after a time, though it is never so pronounced as it was before interference with the splanchnics. It may be that the rupture of the splanchnic nerves disturbs vagal responses in some way other than by a break in the anatomical continuity, but the sudden and complete disappearance of the hypotensive reaction after this rupture is suggestive of continuity. Blocking and unblocking of splanchnic conductivity by a galvanic current caused some variations of the hypotension. Generally it was diminished but not quite abolished by the blocking current. Only a few such observations were made.

The question of the existence of sympathetic fibres in the gastric vagus, already referred to, opens up that of another with regard to the presence in the vagus trunk of sympathetic vascular fibres. The views of the Hungarian anatomist Kiss are of interest in this connexion. From histological and anatomical study he concludes that the relations between pneumogastric and sympathetic are the same as those between spinal nerves and sympathetic. The intracranial vagus, he says, contains large and small myelinated fibres, of which the latter are the more numerous. There are no true sympathetic or non-myelinated fibres in this part, but between vagal and sympathetic ganglia free communication occurs, the vagus containing pre-ganglionic and post-ganglionic (non-myelinated) fibres of sympathetic type. He says that all para- and pre-vertebral ganglia belong to the sympathetic exclusively. There are no grounds for the idea that there is a parasympathetic system in the abdominal cavity, and all so-called parasympathetic phenomena are negative sympathetic phenomena. Kiss apparently takes no account of pharmacological distinctions, nor does he consider differences of physiological effects. He distinguishes and classifies nerve units by their histological characters.

The pressor-depressor response to stimulation of the peripheral vagus already described was, as stated,

unaffected by atropine, like chorda tympani vaso-dilatation in the submaxillary gland. This observation suggested that it was due to stimulation of sympathetic fibres. Sympathetic paralysants annulled the response, the hypertensive phase being the more resistant. The action of ergot preparations on the sympathetic is generally said to be a paralysis of motor or vaso-constrictor elements, leaving depressor or dilator fibres intact, but some observers take a different view. Rothlin, Hamet and Rothlin, and Hamet state that motor and inhibitor sympathetic elements are paralysed by ergotamine and yohimbine. In the present experiments the vaso-dilator part of the response was more definitely abolished than the pressor phase by these agents. The thoracic vagus trunk in the dog accordingly contains fibres which regulate vascular tone and which give the reactions of sympathetic elements. The effects of splanchnic section suggest that they are transferred to this system, and there are two possibilities as to how it may happen. It may be that we are stimulating pre-ganglionic fibres in the vagus and that these join up with the splanchnic through an intervening ganglion—thoracic or other ganglionic group. The second possibility is that post-ganglionic fibres in the vagus are merely borrowed from the sympathetic chain to be restored to sympathetic groups in the splanchnic nerve. Certainly the vagal reactions are greatly modified by splanchnic section, and it looks as if at least some of the fibres concerned are cut in the process. The result is not to be explained by injury to vagal fibres in dissecting the splanchnic, for the reaction was frequently observed to exist after this procedure and before rupture. Possibly rupture injures vagal fibres to the coeliac ganglion. The abolition was best marked in case of the right vagus.

Concerning the seat of the vaso-dilatation, the work of McMichael and of Griffith and Emery is of interest. The former is satisfied, from the results of injecting acetylcholine, that there are no vaso-dilator fibres of parasympathetic nature in the liver. He does not seem to have stimulated the vagus nerve electrically to observe if a fall of blood pressure ensues. It may be quite true to state that there are no parasympathetic vaso-dilator fibres in the liver, yet the left vagus nerve may bring vaso-dilator fibres to this organ, fibres of sympathetic origin. Only in case of pneumogastric excitation producing hypotension with no increase of liver volume should it be said that the liver is not the seat of vaso-dilatation. McMichael further concludes from the effects of ergot that there are no sympathetic fibres in the liver. Griffith and Emery also are opposed to the view of Hallion and François-Franck that vagal dilatation of hepatic vessels does occur. Griffith and Emery stimulated hepatic nerves on visceral arteries. By this means it may be supposed that antagonistic fibres were simultaneously stimulated. Records of portal venous pressure showed a fall of this when the vagus was stimulated, but it is not possible to state if this was due to diminished resistance from the hepatic dilatation or to other change. Carnot, Gayet, and Merklen observed a similar fall of portal pressure from excitation of the pneumogastric nerve. They say that acetylcholine is of uncertain action on this pressure.

With regard to the changes of renal volume a feature was their variability in different animals. Ergot preparations diminished the shrinkage of the kidney. This observation of the failure of atropine to affect the reaction points to sympathetic elements as producing it. Kuré says that parasympathetic fibres are vaso-constrictor to the pulmonary vessels and dilator to the kidney and intestine. Tournade described a vaso-constriction of the kidney from vagal excitation, which causes increased secretion of adrenaline and thus adds to the direct nervous constriction. In the present experiments there was no clear effect either on blood vessels or intestine which could be ascribed to any marked secretion of adrenaline resulting from stimulation of the pneumogastric. But injection of acetylcholine when this nerve was paralysed by atropine had effects which could be best explained by increased secretion of adrenaline.

Summary

The vagus nerves were stimulated peripherally below the origin of the cardio-inhibitor fibres. Motor effects on the intestine were obtained which were abolished by atropine and not affected by sympathetic paralysants. They are occasioned by parasympathetic fibres which really exist as myelinated units separate from the sympathetic. Inhibitory vagal fibres to stomach and intestine may be sympathetic in type. Vascular fibres exist in the vagus which on excitation yield hypertension and hypotension. These are unaffected by atropine, and are paralysed by ergot and yohimbine. They seem to be sympathetic elements. It is not possible to say if these occur in the vagus as pre- or post-ganglionic fibres. Stimulation of the vagus causes constriction of the kidney, but the reaction is well marked only in a certain proportion of animals. The nervous units responsible for this reaction behave like sympathetic elements.

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THE AETIOLOGY AND PREVENTION OF THE TOXAEMIAS OF PREGNANCY

BY

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There are distinct signs that individual observers are beginning to recognize that ante-natal clinics, as they are at present organized, have not served to lower the maternal mortality rate, and that even efficient ante-natal supervision cannot be substituted for sound midwifery. It is not, however, realized that the death rate per thousand live births from puerperal albuminuria and convulsions and the other toxaemias of pregnancy in England and Wales during 1931 was slightly higher than it was in 1921. The investigation into the causation of these toxaemias is therefore not merely a question of absorbing academic interest, but one of real importance, for until radical changes have been effected in our maternity services it seems probable that the only hope of

lowering the maternal mortality rate lies in preventing their occurrence.

THE "TOXINS" OF PREGNANCY TOXAEMIAS

The term "toxaemias of pregnancy" embraces many symptoms, syndromes, or diseases, and includes hyperemesis gravidarum, excessive salivation, chorea, neuralgia, peripheral neuritis, tetany, impetigo herpetiformis and dermatitis herpetiformis, accidental haemorrhage, acute yellow atrophy of the liver, severe anaemia of the pernicious type, the kidney of pregnancy, and eclampsia. There are, moreover, a considerable number of aberrant forms of toxaemia which are difficult to classify. A woman may die in coma in the absence of any other sign or symptom, and I attended one patient, diagnosed by a very competent neurologist as suffering from tuberculous meningitis, who commenced to make a complete and rapid recovery so soon as the uterus had been emptied. Each and every one of this imposing array of syndromes, manifesting symptoms differing from each other as widely as the poles of medicine and affecting every system of the body, is causally associated with pregnancy, for so soon as it is terminated the symptoms begin to disappear. Some of them—such as eclampsia, the kidney of pregnancy, and hyperemesis gravidarum—are peculiar to pregnancy, but by far the greater number are not. There is no analogy for the assumption that any one toxin could cause such a variety of symptoms, and if "toxins" are to be postulated the minimal number could hardly be small. Most writers on this subject have confined their attention to what they call the nephropathy of pregnancy and eclampsia, and with a fine disregard of clinical facts and of geographical and economic influences on the incidence of these diseases have formulated hypotheses of merely parochial application.

It is because the hepatic lesions which are frequently associated with eclampsia are so striking and occur in no other disease that the majority of authors have maintained that they can only be explained on the assumption that some peculiar toxin is elaborated in the products of conception. I have shown that in dogs similar lesions may be caused in the liver either by feeding the animals on a lean meat diet or by raising the intra-abdominal pressure. It was suggested that not only eclamptic convulsions but the pains associated with obstructed labour, and possibly even with normal labour, might cause haemorrhagic necroses in the periphery of the lobules of the liver.[1] Dr. R. M. Fry, assistant director of the Bernhard Baron Memorial Research Laboratories, Queen Charlotte's Hospital, was good enough to invite me to examine sections from the livers of several patients, which support this contention. The history of one of these cases is as follows:

> Labour was induced in a primipara because of a flat pelvis. Four days later definite labour pains commenced, but it was not until after a lapse of a further forty-eight hours that delivery was effected with the forceps. There was no albumin in the urine, the blood pressure was not elevated, nor were symptoms of toxaemia present. Vomiting commenced the day following delivery, and was associated with a slight degree of jaundice. Death occurred sixty hours after the child was born. There was no evidence of puerperal sepsis. Sections from the liver show widespread haemorrhagic necrosis, especially affecting the periphery of the lobules, although a single layer of liver cells often separates Glisson's capsule from the area of necrosis. Glisson's capsule in many areas shows severe degenerative changes, while the centres of the lobules are loaded with fat. The sections show the classical lesions which have been described as being peculiar to eclampsia. The patient did not suffer from any toxaemia of pregnancy, and was thought to have died from delayed chloroform poisoning.

In view of the experimental work to which reference has been made there can be little doubt that these hepatic lesions were caused mechanically by the labour pains, and if this view be accepted the strongest argument in favour of an elusive toxin peculiar to pregnancy falls to the ground.

PREGNANCY TOXAEMIA AND DIETETIC DEFICIENCY

The hypothesis[2] I have advanced is that there is no such thing as a toxaemia of pregnancy, if by this term a toxin or toxins peculiar to pregnancy be postulated, and that all the manifestations enumerated above as well as the ordinary morning sickness and the proneness of the pregnant woman to suffer from decayed teeth, falling out of the hair, brittle nails, and, less often, bleeding of the gums, are expressions of dietetic deficiency or deficiency diseases. Normally, deficiency diseases are due to the fact that the food absorbed, and usually the food ingested, is deficient in one or more essential substances. During pregnancy an additional, and usually the most important, factor is that the foetus robs the mother of essential substances, and renders a diet, barely sufficient for the mother, deficient for the mother and foetus. It is imperative to realize that of a thousand men fed on an identical diet deficient in vitamin B only a small percentage will suffer from beri-beri. The explanation of this is not clear, but the fact is beyond doubt. Beriberi is frequently associated with pregnancy, and it is my belief that some of the cases of peripheral neuritis associated with pregnancy in this country are suffering from that disease. Deficiency in key substances during pregnancy disturbs "*la fixité du milieu intérieur*," and this physiological breakdown renders impossible "*la vie libre*."

I would restate my hypothesis in the following terms. All the ailments and "toxaemias" associated with pregnancy are caused by an absolute or relative insufficiency of some substance or substances in the diet, the most important of which is calcium, which leads to an inharmonious working of the various physiological processes in the body and ultimately to hepatic dysfunction. The variety of ways in which hepatic dysfunction may be revealed is only limited by the number of physiological processes in which the liver is concerned. Similarly, the variety of ways in which calcium deficiency may be revealed is only limited by the number of functions dependent on calcium ions. The final breakdown may be sudden as in some cases of eclampsia, or be preceded for weeks or even months by "toxaemic" manifestations. Albuminuria, cases of chronic nephritis excepted, is caused by mechanical dietetic factors, and is, in some cases, inevitable. If the liver is unable to detoxicate the toxins from the bowel they will gain entrance into the blood stream and damage the whole body, including the kidneys. If this hypothesis be true, it is clear that the toxaemias of pregnancy can only be prevented if an adequate diet be given throughout the period of gestation. Absence of water in the radiator or oil in the engine causes the pistons of a motor car to seize. Prevention is simple right up to the moment of the occurrence of the tragedy, which may or may not be heralded by warning symptoms, but once the seizure has occurred an expensive repair becomes necessary. In like manner the proof of this hypothesis cannot lie in the dietetic treatment of eclampsia, but in the prevention of the onset of the disease. The Dublin school has taught that eclampsia is due to an excess of food—an entirely different conception—and in this connexion it is interesting to recall the fact that the first patient in the series of cases of eclampsia published by Lever[3] in 1843 was a starving woman, who had lived for some considerable time on nothing but a daily meal of bread and tea. The object of this paper is to offer a few observations on an adequate

diet, with special reference to iron, iodine, and calcium ; to discuss a few symptoms ; and to report some results obtained by calcium therapy.

The Diet

The diet should be well balanced and should provide a sufficient number of calories. The pregnant woman, even when showing toxaemic symptoms, is perfectly well able to assimilate proteins as provided in eggs (lightly boiled or raw), milk, and cheese. Vegetables, parboiled for preference, salads, and fruit should form an important part of the dietary, for these foods not only contain important vitamins and essential mineral substances, but promote peristalsis. It would be ideal if every woman during the latter half of her pregnancy could be assured of an adequate supply of vitamins A, B, C, and D, and the question resolves itself largely into one of economics. Towards the end of pregnancy it is often advisable, for mechanical reasons, to allow four small meals daily rather than three large ones. Heartburn may be relieved by almost any alkali, but a teaspoonful of sodium bicarbonate in a little warm water taken a quarter of an hour after meals is satisfactory, cheap, and easily obtained.

There is little doubt that in some cases meat is definitely harmful to a patient suffering from an elevated blood pressure and albuminuria. The evidence that lean meat can cause severe damage to the liver is conclusive, but that this damage is caused merely by its high protein content is almost as conclusively disproved. It is probable that meat is harmful because of some other substance it contains, possibly guanidine or guanidine-like bodies ; but of this there is at present no satisfactory evidence. In most cases fish may be substituted for meat with absolute safety. It is therefore advisable to limit meat to the midday meal after the twenty-fourth week of pregnancy, and to substitute fish if the slightest evidence of " toxaemia " be noted.

Iron

There are about three grams of iron in the body, of which three-quarters are combined as haemoglobin in the red blood corpuscles. The daily loss of this metal is small, but is not greatly exceeded by the amount ingested. Woman bleeds physiologically, man does not ; it follows that she is the more likely, other things being equal, to suffer from anaemia. The demands of the foetus for iron are relatively high, and if the mother's reserves of the metal are low she will suffer from anaemia, which is much more common during pregnancy than is generally recognized. Blood counts should be made more frequently at ante-natal clinics, for apart from the possible harm done to the foetus and the dangers inherent in the severer forms of anaemia an anaemic woman is very liable to develop puerperal sepsis. Spinach contains more iron than any other article of diet, while eggs contain a fair amount in a form which is readily assimilated. If the woman appears to be anaemic Blaud's pills should be prescribed, and generously.

Iodine

Thyroxine exerts a very powerful influence on metabolism, and acts on the ovaries, the hypophysis, the adrenal glands, and the kidneys. The intake of iodine in the food is so small that most pregnant women in England come very near to suffering from iodine deficiency. In goitre belts it has been found possible to stamp out endemic goitre by giving pregnant women iodine. Although the importance of giving the expectant mother iodine for the sake of her unborn child has been appreciated, it has not been recognized that it should be given to her for the sake of her own metabolism. There is a fair amount of iodine in watercress, but it is not easily absorbed from this green food. It is therefore essential to advise her to take fish, especially herrings, and to use iodized table salt on the table and in the kitchen. Cod-liver oil may also be recommended, for not only is it rich in vitamins A and D, but it contains a considerable amount of iodine.

Significance of Calcium in Pregnancy

Lime salts are present in nearly every tissue of the body, and form the great mass of the inorganic constituents of the bones and teeth. They are not only essential to life but to many of the physiological processes and ferments of the body, and in their absence the heart ceases to beat and the blood to clot. The amount of calcium circulating in the blood remains remarkably constant at about 10 mg. per 100 c.cm. of serum, but of this amount probably only 2 mg. exist as calcium ions, while 4 mg. are in some form of combination with protein or possibly lipoids. Calcium is not easily absorbed from the alimentary tract, and in an adult the amount absorbed is roughly equal to the amounts eliminated in the urine and faeces. Any excess of intake over output is stored in the bones, and that last laid down is first requisitioned when need arises. This calcium may be referred to as the deposit account, whereas that in the blood and soft tissues represents the current account, the amount in an organ like the liver varying within wide limits. It is evident that there must be a very delicate mechanism which maintains a balance between absorption, deposition, and elimination, and there is a very intimate relation between the calcium and the phosphorus in the blood.

It has been estimated that a woman during the latter half of pregnancy requires as much as 1.6 grams of calcium daily, and that the foetus itself retains 8 grams of this mineral during the last four weeks of its intrauterine existence. The diet of very few women in England contains that amount of calcium, and of the amount ingested only a proportion is absorbed. It follows that the pregnant woman must, in the majority of cases, call upon her deposit account, as neither income nor current account is sufficient to meet the demands. Vitamin D controls absorption, but the exact relation between the parathyroids and vitamin D in regulating the serum calcium is not fully understood. Seeing that the skeleton contains more than a kilogram of calcium there is obviously always sufficient calcium in the bones to meet the demands of the body, but it does not follow that it is either readily available or easily converted into a suitable form, as free ions are believed to be necessary for many physiological processes. The great demands of the foetus on the maternal calcium have led various observers to suggest that eclampsia was caused by a deficiency of calcium in the maternal blood, and they have regarded the convulsions of this disease as a manifestation akin to the tetany which follows removal of the parathyroids. The serum calcium is definitely lowered during pregnancy, but not sufficiently to render any such hypothesis plausible. In 1928 a paper by Lamson, Minot, and Robbins[1] appeared which showed that the addition of calcium to the diet caused dogs, previously susceptible, to become tolerant to carbon tetrachloride poisoning, and this discovery was all the more important as it was accidentally made. As I had for some time been treating eclamptic patients with intramuscular injections of calcium chloride I at once wrote to Professor Lamson, expressing the opinion that these results were extremely significant from the point of view of the aetiology of eclampsia. In a letter to me he stated that

there was no significant difference in the blood calcium figures of the dogs which were susceptible and those which were tolerant to the drug. It follows, if these results are confirmed, that calcium can protect the body against at least one poison, and that measurements of the serum calcium afford no indication of the amount of calcium which can be so used. It is probable that, until it is possible to measure the amount of calcium in the form of free ions, estimations of serum calcium will only possess a very limited value. In the following year, Minot and Cutler,[5] working under the direction of Professor Lamson, published a short paper reporting the results of treating pre-eclampsia and eclampsia with calcium gluconate.

It is clear that during pregnancy it is essential to prescribe a diet rich in calcium and in vitamin D. Milk, cheese, and butter contain calcium in abundance in a form which is fairly readily absorbed, and every pregnant woman should take a pint or more of milk daily. The amount of vitamin D in milk varies enormously, and during winter may sink to a very low level, but this problem will be solved when irradiated milk is put on the market. It is extremely difficult to administer calcium by mouth. Calcium chloride is easily absorbed, but is irritant and increases the acidity of the urine, which consequently contains a larger amount of calcium. Calcium gluconate is converted in the stomach into the chloride, and so merely provides an expensive, if convenient, way of exhibiting the chloride. The ideal method of increasing the available amount of this mineral in the body is by injecting 10 c.cm. of a 10 per cent. solution of calcium gluconate (Sandoz) intramuscularly. The gram of calcium gluconate injected contains 0.093 gram of calcium element in a form which is readily ionized. Seeing that the total amount of calcium in the woman's serum does not exceed 0.3 gram, of which probably not more than 0.06 gram exists as free ions, it is obvious that one injection may double the amount of calcium ions in the blood. The injection is absolutely painless, and may be repeated at frequent intervals. Calcium levinulate is now on the market, and should be as good as, if not better than, the gluconate, but I have had no experience of this preparation.

RESULTS OF CALCIUM THERAPY

It may be confidently asserted that it is possible to prevent teeth from decaying, hair from losing its glossiness and falling out, and nails from becoming brittle by ensuring that the diet during pregnancy is adequate in its content of vitamin D and calcium.

Excessive Salivation.—This symptom is exceedingly uncommon. The wife of a doctor commenced to suffer from a severe degree of this affliction, associated with a foul taste in her mouth, during the early weeks of her first pregnancy. She was kept for several weeks in a nursing home, but in spite of the most skilled treatment the symptom persisted unabated until after the delivery of the child. The symptom recurred early in her second pregnancy, and again all attempts at its alleviation proved unavailing. The husband consulted me several weeks after the symptom, as bad as ever, had manifested itself in the third pregnancy. I advised the intravenous injection of 10 c.cm. of calcium gluconate and certain additions to the diet. The symptom practically cleared up immediately, and the doctor described the result as "almost miraculous." As I did not see the patient herself psychological factors can hardly have influenced the result.

Vomiting of Pregnancy.—There is not, in my opinion, the slightest justification for assuming that any case of hyperemesis gravidarum can be labelled neurotic. It is my belief that the threshold of vomiting is lowered during pregnancy and that there is no difference in kind, but only in degree, between ordinary morning sickness and a fatal case of hyperemesis gravidarum. Those who have maintained that it is never necessary to empty the uterus for this condition and that all such patients may be cured by suggestion either have had a very limited experience or possess short memories. I have seen several cases in which the vomiting has been completely checked, although the patient has subsequently died or suffered from a severe attack of peripheral neuritis lasting for several months. In the last year or two quite a number of patients have been referred to me because of vomiting, some being in the early months, but the majority in the last few weeks of pregnancy. This is the type of note the patient brought from the ante-natal clinic:

"Slight trace of albumin. General condition poor. Poor colour and looks ill. Headaches occasionally. Blood pressure has varied from 134/68 mm. to 144/72 mm. Hg. She is vomiting a good deal and has much heartburn. No medicine seems to help."

In each and every case the intramuscular injection of calcium gluconate cleared up the symptom almost immediately and the change in the patient was remarkable.

Cramps.—A number of patients in the last weeks of pregnancy have been referred to me because of cramps, usually of the muscles of the calves but sometimes involving the gluteal groups as well. The symptom is generally worse at night, and causes the woman to get out of bed and walk round the room. Besides being painful these cramps, by interfering with sleep, reduce the sufferer to a low state of health. In every case it has been found possible to clear up the symptom completely and in most cases immediately by the intramuscular injection of calcium.

Oedema.—There are three main causes of oedema which operate during pregnancy.: (1) pressure, (2) excess of fluid intake over fluid output, and (3) altered permeability of the tissues.

1. There is no need to lay emphasis on the factor of pressure, except to point out that the widening of the intercostal arch and the elevation of the diaphragm by the bulk of the uterus raise the venous pressure in the thorax and so tend to cause oedema of the upper as well as of the lower extremities. The most severe degree of oedema may be due to mechanical factors and, in particular, to acute hydramnios.

2. The normal pregnant woman can excrete the usual amount of urine in the twenty-four hours, but during the latter months, owing to mechanical factors, the proportion of urine passed by night increases until the night/day urine ratio often exceeds unity. Although she can excrete the average daily amount of urine her response to water diuresis is frequently, if not usually, impaired, and this impairment is more marked in cases of the nephropathy of pregnancy. It is obvious that if more water is ingested than can be excreted oedema is inevitable. For this reason the indiscriminate water elimination treatment of the toxaemias of pregnancy is fundamentally unsound, and must lead to water intoxication and possibly death from either oedema or convulsions. Ardent exponents of this treatment can only save the woman from "drowning" either by cruel and otherwise useless purgation or by the timely induction of labour.

3. From time to time patients are encountered who for no very apparent reason exhibit oedema. In one such patient the oedema chiefly affected the face and upper extremities, and disappeared after one injection of calcium, although delivery did not take place until some weeks later. Another was sent from the ante-natal clinic to be admitted because of marked swelling of the feet, ankles, and over the shins; but no treatment was considered

necessary. When she was permitted to get up during the puerperium the oedema returned and was as bad as ever on the morning of her discharge, fourteen days after delivery, although she had been in bed for the previous twenty-four hours. She was given an intramuscular injection of calcium and told to return in two or three days, when she reported that the swelling had gone down shortly after she "was poked with the needle." There can be little doubt that oedema may, in some cases, depend on the permeability of the tissues, which may be altered by calcium.

Dermatitis Herpetiformis.—A patient thirty-seven weeks pregnant was referred with dermatitis herpetiformis, which she had had for over five weeks. After one intramuscular injection of calcium the rash commenced to clear up, and had disappeared before her confinement. The improvement in her health was remarkable, and she declares that she felt a "different woman" the day following the injection. Another patient with this condition only presented herself a fortnight before her confinement complaining of sleeplessness. An injection of calcium caused her to sleep naturally and led to a very great improvement in the rash, which she had had for several months.

Chorea.—Last year I saw one patient early in pregnancy with marked choreiform movements and severe peripheral neuritis, particularly affecting one side. She was put on a complete diet with the addition of calcium and vitamins A, B, and D, and improved astonishingly. When she came to be confined she appeared to be normal, and gave birth to a healthy child.

Blood Pressure.—The systolic blood pressure is not usually raised during pregnancy, while during the early months it may measure less than 90 mm. Hg. In those cases in which the blood pressure is markedly elevated the systolic blood pressure varies within a few minutes, sometimes by as much as 50 mm. Hg, and this, in my experience, is a constant phenomenon. Adrenaline is the one known physiological substance which could cause such a sudden, considerable, and transitory rise of blood pressure, and it would appear most probable that these patients suffer from "jumpy adrenals." Everybody is agreed that the diastolic blood pressure increases by about 5 mm. Hg during the latter months of pregnancy. Seeing that it is possible by constricting the chest with a rubber band to a degree which causes no inconvenience to raise the diastolic blood pressure by as much as 10 mm. Hg, it would appear logical to assume that the partial fixation of the chest effected by the bulk of the uterus operates in a similar manner. It is easy to raise the diastolic and to lower the systolic blood pressure directly by mechanical means, but it is probable that the rise in the systolic blood pressure which sometimes occurs as a result of these manœuvres is indirect, for it cannot be obtained in anaesthetized animals. The varying effects on the systolic pressure caused by constricting the chest depend on the degree of constriction effected. It has been found possible to lower the systolic blood pressure to its normal level in nearly every case by the injection of calcium gluconate and without rest in bed, providing treatment is instituted before the pressure has significantly exceeded 140 mm. Hg. Once the blood pressure has exceeded 150 mm. Hg it is usually impossible to bring it down to the normal level, and the degree of improvement obtained may be in large part due to the rest in bed.

Albuminuria

1. Albuminuria is common in girls and young women, the incidence decreasing after the twenty-sixth year.[5] The incidence of the albuminuria of pregnancy might therefore be expected to be highest in women below that age.

2. The 1,000 ante-natal clinics in England and Wales have merely served to lower the incidence rate of the albuminuria of pregnancy, but not that of eclampsia.

3. Women suffering from non-nephritic albuminuria usually pass an albumin-free urine during the early months of pregnancy.[6]

4. The most severe degree of albuminuria (and of oedema) may be associated with acute hydramnios, and may be cleared up by the Queen Charlotte Hospital method of tapping the amniotic sac without disturbing the pregnancy.

5. A slight increase of pressure in the renal veins causes albuminuria, and the mechanical–dietetic hypothesis is a simple and adequate explanation of the albuminuria of pregnancy.[7]

6. During pregnancy the amount of urine passed in the twenty-four hours is of much greater significance than the amount of albumin it contains. The routine measurement of the blood pressure and testing of the urine for albumin at fortnightly intervals during the latter weeks of pregnancy are nevertheless of the utmost importance, and often make it possible to detect the early stages of impending "toxaemia."

7. There is no reliable evidence that the "kidney of pregnancy" is liable to undergo nephritic changes.[8,9]

Treatment of "Toxaemic" Patients

Seeing that the whole thesis of this paper is that the sole satisfactory method of treating the toxaemias of pregnancy is to prevent them, only a short account will be given of these cases. Dr. Bethel Solomons was kind enough to try the calcium and vitamin treatment on his toxaemic patients at the Rotunda Hospital, and obtained very unsatisfactory results. This was possibly to be expected, seeing that many of his cases were pre-eclamptic, and that he combined water elimination treatment with the calcium therapy.

The present report deals with twenty-three patients, of whom nineteen were primigravidae. Most of the patients were admitted with a raised systolic blood pressure (in more than half the cases it was 160 mm. Hg or higher) and albuminuria, while some further complained of headache and vomiting.

All the patients were put on a full diet with the exception of meat, and most of them were allowed fish. They were neither violently purged nor persuaded to drink large quantities of water, and in no case was sodium chloride withheld. They got up each evening, walked about the ward, and bathed themselves. In addition to the diet they were given radiostoleum (B.D.H.) one drachm three times daily, marmite, potassium iodide, and frequent intramuscular injections of calcium gluconate. Both parathormone and thyroid extract were tried, but did not appear to be beneficial. Liver extract proved definitely harmful in one case, the systolic blood pressure rising sharply from 145 to 190 mm. Hg, and its use was therefore discontinued. The daily output of urine, the amount of albumin in the morning specimen, and the morning and evening measurements of the blood pressure were charted. Water diuresis tests were made when possible.

Results

Oedema was conspicuous by its absence, and only persisted in two cases of twin pregnancy complicated by hydramnios. Five patients went into labour shortly after they were admitted, and one was admitted for induction of labour because of a dead foetus. In ten patients there was very definite improvement; the symptoms in some cases cleared up completely. One of this number was admitted at the thirty-seventh week of her pregnancy with a blood pressure of 160/120 mm. Hg, and a catheter specimen of her urine contained albumin ++. The urine became albumin-free, and the blood pressure dropped within five days to 128/90 mm. Hg. In the case of five patients it was found impossible to lower the blood pressure significantly. One patient had a fit two days after her admission, and was delivered normally of a healthy child fifteen days later. Labour was induced in only two cases: once because the patient was believed to be

overdue, and once because of hydramnios. Five babies were born dead, two being twins and three being macerated; and two premature babies died. It is interesting to note that although there were only four multiparae in this series, two of them gave birth to dead babies. Both had high blood pressures, but their urines were protein-free. The mother who gave birth to dead twins had been ill in hospital elsewhere for over a month before she was admitted to the ward. On admission her systolic blood pressure exceeded 170 mm. Hg; her urine contained albumin; the red cells were under 2,000,000 per c.mm., the colour index being 0.5; and she was jaundiced. She was in the ward for five weeks before delivery. The first foetus was macerated and the second was born dead, probably because too long an interval was allowed between the birth of the first and second twins.

All the mothers are well, and in no case could a diagnosis of chronic nephritis be made. The systolic blood pressure has remained high in two cases, and well above the average in two more, but there is no reason to believe that this elevated blood pressure did not in each case antedate the pregnancy.

CONCLUSION

It is inherently improbable either that any one toxin could cause the widely varying symptoms associated with the toxaemias of pregnancy, or that a number of separate toxins should originate in the products of conception. The fact that the hepatic lesions peculiar to eclampsia may be caused by dietetic or mechanical factors, or a combination of both, disposes finally of the strongest argument in favour of a pregnancy toxin. It is suggested that the foetus affects "*la fixité du milieu intérieur*," and that all the toxaemic disorders may be regarded as deficiency diseases. It follows that there is no fundamental causal difference between ordinary morning sickness and eclampsia. This hypothesis is not contradicted by any known fact, and is supported by the results of calcium therapy reported above. If excessive salivation, vomiting, cramps, dermatitis herpetiformis, oedema, and other symptoms can be cured by the injection of calcium, it is logical to suppose that they are caused by its deficiency. The number of patients who have been treated is small, but the success which has attended calcium therapy in such a variety of conditions warrants its extended trial. A great disservice has been done to the science of dietetics by those enthusiasts who stress this or that vitamin without considering the diet as a whole or the importance of personal hygiene. It is claimed that a complete, well-balanced, appetizing and easily digested diet, rich in the vitamins and in calcium, iron, and iodine, if given early in pregnancy, will prevent the onset of the toxaemias of pregnancy (but not always of albuminuria), although it may be necessary to increase the available amount of calcium by the injection of calcium gluconate: indeed, it might be expedient, and in the end economical, to give routine injections of this mineral at the thirty-second and thirty-sixth weeks of pregnancy. It is further believed that such a diet would increase the resistance of the woman to puerperal infection. The one advantage of this hypothesis, which is possessed by no other, is that it can be put to the test, and even under "field" conditions.

This work was done at the Hammersmith Hospital, and I should to take this opportunity of thanking my assistant Dr. B. Williams, until lately resident medical officer, and Miss V. Page, sister in charge of the maternity wards, for their loyal co-operation.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

PRIMARY CALCULUS OF THE URETHRA

The following case seems of sufficient interest to be recorded.

A. B., aged 55, was admitted to the County Hospital, Wakefield, on March 4th, 1933, suffering from extravasation of urine. He stated that for ten years or more he had suffered periodically from gravel, with some pain in passing urine, and frequency. He very rarely consulted his doctor, but took copious draughts of barley-water. He worked in a coal mine and on the land. He had seldom had to cease work on account of the symptoms. Alert otherwise, he seemed, with regard to his genito-urinary tract, to be endowed with, in the circumstances, the priceless gift of mental torpor. He had never noticed any swelling in the perineum. A fortnight before admission he fell astride, but disregarded the injury. However, in an hour or two he had violent pain in the perineum, and blood was passed by the urethra. A sinus eventually formed in the scrotum, which gave him relief. On admission the scrotum was gangrenous, and cellulitis extended

The calculus, which measured 2½ in. by 1½ in. at its widest part.

on the left side of the abdomen in a slanting manner towards, and just beyond, the level of the anterior superior spine of the ilium. The right testicle was absent; penis and right abdominal wall were not affected. There was a sinus in the scrotum, from which issued a foul-smelling discharge. A catheter was passed beyond the injured part without difficulty.

At operation the scrotum was incised in the middle line, and the knife impinged on a hard substance. A calculus, or fragment of a calculus, lying loose in the sloughing, foul-smelling tissues, was removed. The finger was again introduced into the wound, and what appeared to be a smaller calculus, gripped tightly by the surrounding tissues, was discovered and removed by further incision. The anterior extremity of this was at the peno-scrotal junction. The left abdominal wall was incised. The gangrene had invaded the tunica vaginalis. Minute inquiry into the actual state of affairs was impracticable owing to the local and general condition of the patient. A rapid improvement followed the operation. Secondary suture was performed on April 1st, 1933, in the lithotomy position. In the left lateral wall of the urethra was an opening half an inch long. This led to a pouch roughly three inches by two, from which the calculus had been removed. The proximal wall of this diverticulum had disappeared in the sloughing process, except at its upper and lower extremities. The distal wall was intact, and was lined with what appeared to be mucous membrane—pale, smooth, and thickened. The distal wall was incised, and a flap was raised from it to repair the defect in the left lateral wall of the urethra. The rest of the sac was excised. The testicle was replaced in the remains of the scrotum, and a catheter was tied in. The insertion of the

catheter at no time presented the slightest difficulty. The fractured calculus weighed three ounces—the larger posterior portion weighing two ounces—and measured 2½ in. by 1½ in. at its widest part. It had apparently been fractured by the fall, which had also ruptured the wall of the diverticulum. Within a fortnight the patient was passing urine normally. *X*-ray examination of the genito-urinary tract was negative.

Professor Barger of Edinburgh, who analysed the stone, writes: "Qualitative examination revealed an absence of uric acid and urates, cholesterol, cystine, and oxalates. Ammonia, calcium, magnesium, carbonate, phosphate, and a trace of organic matter insoluble in mineral acid were present. I determined the amount of the following constituents quantitatively: Loss on ignition at red heat (NH_3, CO_2, organic matter), 23.2 per cent.; P_2O_5, 33.3 per cent.; CaO, 28 per cent. The rest (15.5 per cent.) is probably MgO." He adds: "The amount of organic matter was obviously very small. It is difficult to say how the above constituents are grouped, but I think it likely that 28 per cent. CaO, with 22 per cent. CO_2, was combined to 50 per cent. of calcium carbonate (amorphous), and that the other half was nearly all magnesium phosphate with some triple phosphate (ammonium magnesium phosphate). I imagine that the acidity of the urine must have been subnormal."

Wakefield. J. W. THOMSON.

TABES DORSALIS IN AN EAST AFRICAN NATIVE

The recent paper by Gordon and Vint[1] reporting a case of general paralysis in a Kenya native is of interest owing to the comparative rarity of neurosyphilis among natives. In a discussion on the incidence of neurosyphilis in the Tropics[2] all the speakers stated that this condition was rare, and very few cases were reported, although all of them had had extensive experience of work in the Tropics. In looking through the literature available only a few more cases have been found. Wolff[3] reported a case of tabes dorsalis in a native of German East Africa, and quoted Ziemann as saying that he had only seen two cases among West Indians. Kirschner[4] saw two cases of tabes dorsalis in 3,800 native patients, and quoted a third reported by van den Bergh, while Walravens and Walker[5] reported five cases of cerebral syphilis seen at Elisabethville, three of which were diagnosed as general paralysis. The following case of tabes dorsalis in a native of Tanganyika Territory may therefore be of interest.

A Msukuma woman, aged 40–45, was seen on June 15th, 1932; she had had pains in the back and legs off and on for a month, and weakness of the legs of six days' duration. She said that the pain was of a stabbing character, starting in the loins and going round the abdomen towards the umbilicus, and also down the backs of her legs. The latter were thin and so weak that she was hardly able to stand, and she could only walk with the help of a stick, which she held in both hands in front of her. She admitted having had syphilis when she was young, but had had no treatment. On examination her bladder was found to be up to her umbilicus; but this was apparently causing her no pain. There was no pain on palpation of the lumbar region, but the muscles of the right side of the abdomen were slightly resistant. The knee-jerks were absent, and Romberg's sign was marked. The pupils reacted on accommodation, but very sluggishly to light. On lumbar puncture there was a cell count of 77 per c.mm., and the cerebro-spinal fluid gave a ++ Wassermann reaction. She was given tryparsamide, 3 grams intravenously, on two occasions, and then ceased to attend, refusing all further treatment.

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[5] Walravens, P., and Walker, J.: Ibid., 1930, xxvii, 721.

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Reviews

A RADIOLOGICAL STUDY OF OTITIS MEDIA

In a supplement to *Acta Radiologica* Dr. GÖSTA RUNSTRÖM of Gothenburg presents a *Roentgenological Study of Acute and Chronic Otitis Media*.[1] An extensive account of the anatomy of the temporal bone takes the first place to enable the films photographed from different aspects and angles to receive correct anatomical interpretation. The study of the head and of the temporal bone in particular presents the most difficult problem which the radiographer has to solve, and that part of the book in which the technical difficulties are described will appeal chiefly to radiographers. How successfully the technique employed has overcome these difficulties is shown by the case histories with reports which accompany numerous plates of stereoscopic photographs of the temporal bone. There are, nevertheless, limitations to the pathological interpretation of the films, however perfect the technical result may be, and on this point the author insists emphatically. The chief points which can be elucidated are the relative density or degree of aeration of the cellular system, the density or decalcification with diminution in density of the cell walls, and the sharpness of outline or lack of definition of the cells. Decalcification, indistinct outlines, and defects in the cell walls are signs of osteitis. The necessity for correlating the clinical features of the case with the radiographic appearances is another point on which the author insists. There is nothing in the external aspect of the temporal bone to indicate the anatomical constitution of its interior, and this can be well displayed by radiography, but the interpretation of pathological changes requires special training, and must be correlated with the clinical examination.

This study demonstrates most beautifully how the application of physical science and exact mensuration have overcome a problem of great complexity. Examination of the plates and comparison with the case histories and reports will show otologists how much a radiographer with special skill, knowledge, and apparatus can accomplish in this field.

A COLLOIDAL THEORY

"Colloids and Micellae: their Role in Biology and Medicine,"[2] by AUGUSTE LUMIÈRE, is a volume of some 800 pages, in which the author has summarized certain special views on pathology which he has advanced in a series of works published during the last decade. The volume is very well illustrated; thirty-four coloured plates of photomicrographs form a special feature. The remarkable technical perfection of these plates is not surprising in view of the services the author has rendered to the advance of photography.

M. Lumière's main thesis is that "the colloidal state is an essential and indispensable condition for life. Destruction of this state—namely flocculation—causes disease and death."

In a lengthy preface he makes the complaint that there has been a conspiracy of silence amongst medical authorities as regards his work. The publishers, however, speak of it as the scientific gospel of the future, suggest that it is the most important work that has appeared since the discoveries of Pasteur, and state that we are at the dawn of a new era—the colloidal era. It is almost superfluous to point out the difficulty of appraising the status of a book for which claims of this

[1] *A Roentgenological Study of Acute and Chronic Otitis Media.* By Gösta Runström. *Acta Radiologica*, Supplementum XVII. Stockholm: Acta Radiologica. 1933. (Pp. 88; 54 plates. Swedish crowns 20 net.)
[2] *Colloïdes et Micelloïdes.* Par Auguste Lumière. Paris: N. Maloine. 1933. (Pp. 806; 33 figures, 34 coloured plates. 75 fr.)

nature are made. This difficulty is increased by the fact that the author deals with some of the most obscure problems of pathology—namely, the nature of anaphylactic and other forms of shock, and the mechanism of immunity phenomena. The general line of argument of the author is indicated by the following quotation (p. 311):

"The colloidal theory, which enables us to understand the mechanism of shock, provides us at the same time with a key to its peculiar features, which no previous author has defined and still less has explained. If it be granted that the destruction of the colloidal state and the flocculation of certain plasmatic materials is the primary cause of the phenomenon, and that shock results from a mechanical excitation of endovascular sympathetic nerve endings by the flocculate, or by some other precipitate of any kind of composition but with a suitable physical form, one understands why substances so chemically dissimilar as barium sulphate, Prussian blue, or a protein antigen produce exactly the same effects."

One particularly interesting feature of this volume is that the author has made extensive researches into the history of the current theories of pathology. He points out that Magendie in 1839 demonstrated that rabbits could be sensitized to albumin, and that similar phenomena were recorded by various workers in the nineteenth century. No notice was, however, taken of these experimental facts until Richet and Portier "had the inestimable merit of producing a theory which proved extremely fertile although certainly incorrect." Throughout his text the author is at pains to emphasize the very numerous phenomena associated with anaphylaxis and immunity, which are either unexplained or else explained by theories that are obviously illogical. It is probable that most readers of this book will hesitate to accept the somewhat sweeping generalizations made by M. Lumière, but even if they disagree with the conclusions, they will find much to interest them in the argument.

OUTPUT OF THE HEART

Cardiac Output,[3] by Dr. ARTHUR GROLLMAN, is an exhaustive study of the output of the heart as estimated by a new method. The author claims that by means of using acetylene he can obtain much more accurate results than have been possible hitherto by any other method. The oxygen consumption of the subject is determined and the change recorded in the acetylene and oxygen content of a mixture containing these gases during rebreathing. If the barometric pressure is known he employs a formula, making use of these data, which gives the cardiac output. The method appears to have wide applicability, and determinations can be made accurately with ease and rapidity. Most people do not appear to object for long to the smell of acetylene, to which they soon become accustomed.

We do not propose to enter into a criticism of the technical details, but rather to record for possible readers of this interesting book some of the results obtained. The author shows that under constant physiological conditions a man's cardiac output is remarkably stable and reproducible within the limits of experimental error. His results appear to indicate that the output is constant from day to day, and not subject to daily or seasonal variations. On these grounds he thinks it possible to define a basal cardiac output somewhat analogous to basal metabolism. He finds that the cardiac output of normal individuals per square metre of body surface is 2.2 ± litres per minute, with an average deviation from the mean of only 6.4 per cent. Physicians will realize the importance of the considerable rise in the cardiac output which he has been able to demonstrate as taking place after a heavy meal. The cardiac output decreases during sleep in exactly the same way as might be expected in complete rest. The increase caused by exercise is determined a good deal by the part which the muscles play in returning the blood to the heart.

The effects of various drugs on the cardiac output were studied. Therapeutic doses of alcohol in normal persons had only a slight effect, and small doses of caffeine caused none. Tobacco sometimes increased the pulse rate, but did not affect the cardiac output. Digitalis appears to decrease the output in normal persons. Dr. Grollman thinks that this drug is only valuable where cardiac dilatation or marked arrhythmia occurs. Further studies are needed in cases of cardiac failure. A rapid and pronounced increase in cardiac output has been demonstrated following the intravenous injection of strophanthin. Adrenaline and ephedrine both increase the output of the heart. Paroxysmal tachycardia and auricular fibrillation have not as yet been extensively studied. Other workers have shown that the output falls considerably in these conditions, particularly when the heart rate is very fast.

Apart from the record of his own observations, which have not as yet been carried very far and will no doubt be much further extended, the author quotes very fully the observations of other workers using different methods. The book gives a full and interesting description of all the information available on this subject, and is of much importance both to the physiologist and to the physician. It may be well recommended as an extensive and valuable study; the matter is clearly set forth and well discussed. There is a good bibliography and the arrangement is clear and comprehensive.

[3] *The Cardiac Output of Man in Health and Disease*. By Arthur Grollman, Ph.D., M.D. London: Baillière, Tindall and Cox. 1932. (Pp. xiv + 315; 15 figures. 21s. net.)

THE COMPUTATION OF "STATISTICS"

Twenty-three years ago, when the first edition of Mr. Udny Yule's now classical textbook appeared, a student untrained in mathematics who wished to apply statistical methods outside the fields of demography or economics could find few guides. Now dozens of more or less competently written books are available. The latest English addition to the series is the work of a distinguished psychologist, Dr. SHEPHERD DAWSON,[4] whose choice of examples will recommend the volume to those wishing to apply statistical methods in the field of psychology. Any beginner who not only reads the text but works through the examples will acquire much useful information, but whether the merits of the volume justify an addition to the list of competing textbooks is a more doubtful question. The title of the book illustrates one of its weaknesses—namely, a tendency to introduce technicalities which the author either does not really understand himself or forgets to explain. To the man in the street *statistics* means, vaguely, something to do with tables of figures and calculations. Mr. Udny Yule's definition—"quantitative data affected to a marked extent by a multiplicity of causes"—is not too technical for an ordinary reader to grasp. Some years ago, Dr. R. A. Fisher, wishing to distinguish between the true value of a parameter descriptive of some feature of a "universe" or "population" and the *estimate* of such a parameter which could be formed from a sample only of the population, defined the estimate as a "statistic." The result is that we have one word used in two different senses: (*a*) statistics, in the man in the street's sense as corrected by Yule: (*b*) the plural of the technical term introduced by Fisher. Now "statistics" in Dr. Dawson's title can only bear meaning (*b*), which will be unfamiliar to 99 per cent. of beginners, yet Dr. Dawson does not point out the ambiguity. Again, a beginner reading

[4] *An Introduction to the Computation of Statistics*. By Shepherd Dawson, M.A., D.Sc. London: University of London Press, Ltd. 1933. (Pp. 192; 42 diagrams. 10s. 6d. net.)

Dr. Dawson's page 80 might easily imagine that Professor Pearson's family of frequency curves could be deduced by making numerical substitutions in the formula of the ordinary binomial. The specification of the various types of Pearsonian curves is incomplete—indeed, many years out of date—and instead of referring the reader to the 1927 edition of Mr. Palin Elderton's well-known book, where correct information can be found, reference is made to the first edition, published in 1906. This misinformation is gratuitous, as, quite properly, Dr. Dawson makes no use of Professor Pearson's curves, which are not suitable for an elementary introduction. We cannot say that, in our opinion, this book is as suitable for beginners as others already well known.

INSPECTION OF FOODS

In a recent issue we commended the first volume of a work on food inspection, mainly concerned with meat. The second volume, which has now appeared,[5] covers the other foods. The edible fish are dealt with first. The signs of their unsoundness are noted, and their diseases, parasitic infections, and methods of preservation are described. Next in order come poultry, rabbits, and game. A wide range of fruits, from the apple to the cranberry, is passed in review, and helpful information is duly given regarding the vegetables, mushrooms, and cereals. The important group of the canned foods is surveyed, and valuable guidance offered as to the methods of examining cans and the correct conclusions to draw from the observations made.

The section on milk is instructive and judicious. The Gerber and freezing-point tests are explained. While the essentials of proper cow-house construction are stated, regard is had to the case of the small producer, hints being given on the reconditioning of old cow-houses and on the steam sterilization of milk vessels in small dairies. The graded milks are faithfully discussed, and a table is quoted to show the extent to which ungraded milks fall short of graded milk standards. The author's view that the pasteurization of milk, if generally practised, would reduce the risk of bovine tuberculosis to a minimum is in agreement with current opinion.

The extent to which confectionery nowadays is not what it seems is shown in a number of instances. In the section on food poisoning the distinction between bacterial food poisoning and botulism is correctly drawn, but the case against the canned foods as sources of food poisoning is, we think, put too high. We have found few errors in the work. It is a storehouse of practical knowledge, and the author, Mr. Martin, has done well by his colleagues in the sanitary service in making the result of his own wide experience so freely available for their guidance.

Notes on Books

A very interesting little book is the late Albert Krecke's Doctor and Patient,[6] wherein the gleanings of some forty-five years of active professional life are collected. A man who could be called "Vater Krecke" by his patients is surely one from whom much may be learned. There is a pathetic interest about the book, inasmuch as the author had planned a dedication to his wife; he died, however, before its publication, and instead of the intended dedication are introductory and biographical notes by two of his colleagues.

The University of London Animal Welfare Society exists for the purpose of educating educated opinion on the subject of the humane treatment of animals. It is not an antivivisection society, and it recognizes that disease and lack of knowledge cause more suffering to animals than does man's conscious effort; it recognizes, however, that "trade" often causes unnecessary suffering. With the purpose of presenting data on this subject it issues an annual yearbook—volume ii of which has just appeared under the title of *Animals, Consider Your Verdict!*[7] It is an important and accurate work of reference to all those who are interested in animals. It avoids sensationalism and harrowing pictures of distress, and concentrates its attention on the responsibilities of man towards his fellow creatures on different branches of the zoological tree.

The third volume of the Reports of the Hospital for Infectious Diseases, Madrid,[8] edited by Dr. M. Tapia, consists of twenty-five papers, most of which have been published elsewhere. Ten of these deal with various aspects of tuberculosis, three each with typhoid and undulant fever, and the rest with pneumonia, malaria, and measles. The statistics of the hospital for 1932 are appended.

[5] *Practical Food Inspection.* Vol. ii. *Fish, Poultry, and Other Foods.* By C. R. A. Martin, M.R.S.I., A.N.I.S.E. London: H. K. Lewis and Co., Ltd. 1933. (Pp. viii + 250; 57 figures. 10s. 6d. net.)

[6] *Vom Arzte und Seinen Kranken.* Von A. Krecke. Munich: J. F. Lehmanns Verlag. 1932. (Pp. 378; 1 figure. Geh. M.4.80, Geb. M.6.)

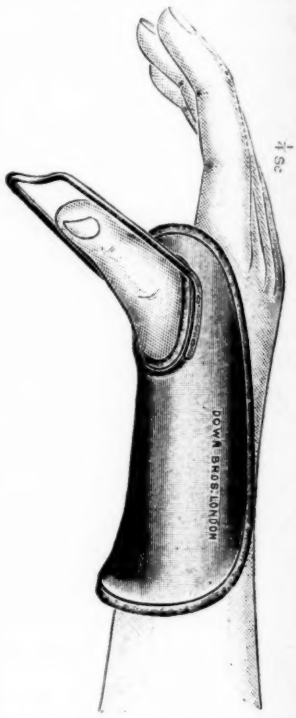
[7] *Animals, Consider Your Verdict!* Vol. ii of the Animal Year Book. Hon. editors: C. M. Knight, D.Litt., Captain C. W. Hume, M.C., B.Sc. London: The University of London Animal Welfare Society. 1933. (Pp. viii + 145. 2s. 6d.)

[8] *Trabajos del Hospital Nacional de Enfermedades Infecciocas.* Vol. iii, 1932. Madrid: Revista Española de Tuberculosis. 1933. (Pp. xiv + 396; illustrated. 16 pesetas.)

Preparations and Appliances

SPLINT FOR BENNETT'S FRACTURE OF THUMB

Sir W. I. de C. Wheeler writes: In the absence of efficient treatment poor functional results often follow an oblique fracture through the base of the first metacarpal bone. In a typical case extension is, as a rule, required for about three weeks. It is difficult to obtain the uninterrupted extension and fixation required by the splint recommended by Bennett, or with any of those in common use. The splint illustrated here has proved effective, and is easily extemporized from one of the common Jones's grooved aluminium arm splints.



The splint is applied to the radial aspect of the forearm. At its distal extremity there is an aperture through which the thumb passes. An extension copper wire (10 s.w.g.) gallows is riveted to the aperture, and projects in an abducted direction beyond the tip of the thumb. Extension is maintained by tapes attached to adhesive plaster strips on the thumb and tied tightly to the end of the gallows. Throughout the treatment the tapes must be kept tight. A small felt or sponge pad is put under the splint at the site of fracture. In this way continuous pressure is combined with continuous extension to prevent slipping of the metacarpal shaft. As in all cases of fracture, reduction under local or general anaesthesia is necessary before or during the application of the splint.

A full description of the use of this and other splints in the treatment of Bennett's fracture is published in the *Medical Press and Circular*, July 26th (p. 90).

British Medical Journal

SATURDAY, AUGUST 26th, 1933

PLEASANT POISONS

The Germans have a useful term, "Genussgifte," which covers the wide variety of drugs wherewith mankind relieves the tedium of life. The English phrase "drugs of addiction" would mean much the same were it not that this has acquired a sinister significance on account of its definite association with the more deleterious drugs such as heroin and cocaine. Public attention has been focused on these latter both on account of the havoc they can work and also on account of the sensational disclosures regarding the international drug traffic that appear from time to time. Nevertheless it is obvious that heroin and cocaine have far less effect on the social life of the community than have the less sensational habit-forming drugs such as alcohol, tobacco, and tea. The magnitude of the part that these latter products play in our lives can best be estimated by considering how we should feel if suddenly deprived of them all. The extraordinary social reactions set up by the introduction of prohibition into the United States give an indication of the extent to which the use of these drugs is woven into the social fabric of modern countries. The failure of prohibition is often adduced as a proof that it is impossible to change the habits of a nation, but actually these habits do change slowly but persistently. It is true that the use of alcohol dates back to the dawn of history, but tobacco and tea are comparatively recent introductions in Europe, since they only appeared in the sixteenth and seventeenth centuries. The trade statistics show, moreover, that their use has only become universal during the last century, and that it is still increasing steadily. The following figures show the curious changes that have occurred in the national drug habits during the past century.

Consumption per Head (U.K.) per Annum

	1830	1875	1900	1930
Tobacco (lb.)	0.7	1.3	1.8	3.3
Tea (lb.)	1.2	4.5	6.0	9.9
Alcohol (gallons of proof spirit)	—	4.8	4.5	2.0

The figures show a steady increase in consumption of tobacco and tea throughout the century and a remarkable fall in alcohol consumption since 1900. These changes cannot reasonably be attributed to taxation, for although this may have helped the decline in alcohol consumption, yet a parallel increase in taxation did not check the increase in the consumption of tea and tobacco. Popular taste is in fact extremely capricious. A hundred years ago the consumption of tea and coffee was approximately equal at just over a pound a head, but since then tea consumption has increased to nearly ten pounds whereas coffee consumption has fallen to about three-quarters of a pound per head.

It seems evident that the desires of the population for drugs are changing slowly but surely. The calculations of consumption per head are unsatisfactory in that children are reckoned in with adults, and the consumption per consumer must be at least one and a half times that given in the case of tea and about twice that given in the case of tobacco and alcohol. If this correction be made, it appears that the average adult takes daily an ounce of pure alcohol (which is equivalent to about one pint of beer) and about two-thirds of an ounce of tea, while he or she smokes about 2 ounces of tobacco a week. Since the consumption of alcohol per head is only half what it was in 1900 we need not now discuss its effects on the population, for presumably these must be decreasing rather than increasing, but it is of interest to consider whether the steady growth of the use of tea and tobacco is likely to produce any unpleasant consequences in the future. It cannot be stated offhand that the effects of the amounts consumed will be negligible. As regards tobacco it has been found that the average consumption in cases of tobacco amblyopia is only 3 ounces a week, which is not so very much greater than the average national consumption. In the case of tea the usual calculation is that a pound of tea provides 200 cups, and hence the daily consumption of two-thirds of an ounce is equal to about eight cups of tea, and this quantity contains about 6 grains of caffein, which represents a full pharmacopoeial dose. When tea and coffee were first introduced they were received with a storm of abuse, and were said to inflict every imaginable evil on the human body and soul. It is interesting to note that in recent years, when tea drinking suddenly became popular in Tunis, there was a press campaign against the custom, in which the accusations of the seventeenth century were repeated almost word for word. This campaign brought to light in a curious way the sharp limitations of the human imagination. In "The Women's Petition Against Coffee," 1674, they complained that "it made men as unfruitful as the deserts whence that unhappy berry is said to be brought," while the Tunisian press a few years ago bewailed the fact that the immoderate consumption of tea by the Arabs would certainly make them impotent. There is no doubt that immoderate use of tea or tobacco can produce a wide variety of injurious effects on the body, but the more interesting and important fact is that the great majority of civilized people take these drugs regularly throughout their adult life without becoming immoderate addicts and without suffering any demonstrable injury.

On the whole, Western Europe seems to be distinctly fortunate in its present choice of "Genussgifte." A short comparative study of the drugs of addiction reveals the fact that there are so many possible choices very much worse than tea and tobacco. Every now and then articles appear in the medical press pointing out the evils that may follow the gross overuse of these drugs, and deploring their increased popularity. The

authors do not, however, always realize that tea and tobacco are replacing alcohol (a substitution of undoubted benefit to the community), that civilized man is certain to use drugs of some kind or another, and that it is extremely lucky he is concentrating at present on such harmless creature comforts as tea and tobacco.

LONDON WATER

Sir Alexander Houston, in his reports of recent years, has from time to time conducted his readers in thought beyond the confines of his laboratories to view the spacious fields made green with the running of that great river whence London draws most of its water supply. Now, in his report for 1932,[1] he puts to himself the question whether he may perchance have erred in trying thus to give light and colour to what might seem to many a severely practical matter. He is inclined to think that on the whole he has done right, for he says that if people learn to love the Thames, including the Lea and other tributaries, they will not fail to strive unceasingly to preserve their amenities and protect them from undesirable pollution.

No one indeed has been more tireless than Sir Alexander Houston himself to secure the purity of London water. His laboratory control, maintained for more than a quarter of a century, has been continued in 1932 with his usual vigilance. Of routine chemical samples of water there were examined during the year 4,677, of bacteriological samples 12,934, making 17,611 in all. The use of chlorine is now restricted to the filtered waters, the dose ranging between 0.2 and 0.3 parts per million. The only Thames waters not now chlorinated are those of Chelsea and Lambeth. The New River water was also subjected to chlorine treatment: a high proportion of samples showed *Bacillus coli* absent from 100 c.cm. of water as delivered to consumers. The various waters which feed the filters were submitted to a careful scrutiny, which demonstrated that as a result of storage, aided in some cases by chlorination, the waters prior to entering the filters had improved 100 to 1,000 times. The view is expressed that if these pre-filtration waters can be pronounced epidemiologically safe the perfect working of the filtration process becomes almost of secondary importance. At the Walton works and the Kempton Park works the order of procedure is storage, primary filtration, secondary filtration, and, finally, chlorination. Both works are producing a high-grade water. A special feature at Kempton Park is the remarkable efficiency of the filters, in which a very fine sand is being employed.

Further reference is made to the combined test for *Bacillus coli* and streptococcus described in the report for 1931. Further comment is added on the paratyphoid outbreak at Epping, which infected Cobbin's Brook, and so came to threaten the water security of part of London. The original protective measures, adopted with complete success, are still being carried out, since paratyphoid bacilli continued to be recovered from the land-treated Epping sewage effluent up to December, 1932. The experimental plant at Barn Elms has again yielded good results, its bacterial efficiency being equivalent to the effect of heating the water at 80° C. for ten minutes. The closing article of the report deals with an inspection of the Rivers Thames and Lea, and prompts the author's question, already referred to, as to whether he has done well to set off his pages with descriptive paragraphs. We feel sure that all will acclaim his action. *Omne tulit punctum qui miscuit utile dulci.* For our own part we have always welcomed his charming topographical commentaries, which enrich his subject with a fuller sense of its place in nature and the lives of men.

[1] Metropolitan Water Board. Twenty-seventh Annual Report. By Sir Alexander Houston. London: P. S. King and Son, Ltd. 1933. (10s. 6d.)

MONILIA INFECTIONS

Yeast-like organisms have long been recognized as responsible for a variety of minor chronic infections in the mouth, skin, and elsewhere, and as the occasional causes of graver infections, either pulmonary or systemic. An almost unparalleled degree of confusion in nomenclature and classification among these organisms has been reached, largely owing to lack of co-ordination between the work of systematic botanists, whose interest is chiefly in their morphology, and of medical bacteriologists, whose chief criteria of identity have been fermentative capacity and pathogenicity. That too much emphasis may be laid on minor variations in capacity to ferment sugars is, by many, believed to be exemplified in the work of Castellani, who defined on this basis no fewer than forty-two distinct types of monilia. Some of these types have been re-examined by other workers, who do not accept them as distinct. Thus Stone and Garrod,[1] who applied the complement-fixation test and the precipitin reaction to the study of monilias, found that strains obtained from cases of thrush and from other lesions in the human subject were serologically homogeneous, and that seven of Castellani's differently named types, in addition to his *Monilia albicans* (the usually accepted name for the fungus of thrush), fell into the same group. The whole of these strains were distinguished from other serologically different types of monilia by the capacity to ferment maltose and by pathogenicity for the rabbit. This effort towards simpler classification was supplemented by the work of Benham,[2] who found that a series of monilias from thrush, sprue (the so-called *M. psilosis*), and various skin lesions were identical by the tests of agglutination and agglutinin absorption, and again distinguished from other types by rabbit pathogenicity. Stovall and Bubolz[3] were also able, on a basis of morphology and fermentative capacity, to reduce 150 strains of their own and ten of Castellani's named strains to only three really distinct types. There seems good reason, therefore, for regarding the monilia group as essentially much less complex than it has been made to appear. A second difficulty, of perhaps more practical importance, has been to decide the significance, if any, of the presence of monilia in clinical

[1] *Journ. Path. and Bact.*, 1931, xxxiv, 429.
[2] *Journ. Infect. Dis.*, 1931, xlix, 183.
[3] Ibid., 1932, l, 73.

material. Where this is clearly a more or less uncontaminated inflammatory exudate, as in frank thrush, in skin lesions such as paronychia, and in a certain type of cervicitis, the organism may reasonably be accepted as causing the condition, but its discovery in sputum cannot be regarded in the same light. Although occasional cases of apparently authentic pulmonary or bronchial moniliasis have been reported in the past, there are also records of long series of cases in which the presence of monilia in sputum has been credited with a hard-and-fast significance which many bacteriologists would call in question. Dr. P. J. Marett of Jersey is well known in this country as a strenuous advocate of the hypothesis that secondary infection by monilia is a frequent and important complication of pulmonary tuberculosis; his most recent report[1] gives 294 as the number of patients in whose sputum monilia was found out of a total of 568 in Jersey during the year 1932. Recent reports of alleged primary bronchial moniliasis are those of Stovall and Greeley[2] and of Gilbert and Groesbeck,[3] who found monilia in the sputa of eighteen and eleven cases respectively. To assess the significance of such findings calls for a more critical attitude and for the adoption of more stringent criteria in laboratory work than any of these communications betray. There is every reason for regarding yeast-like organisms, including true *Monilia albicans*, as common, if not almost universal, mouth saprophytes which assume pathogenic activity only, as a rule, in conditions of profoundly depressed resistance; and although invasion of the bronchi and lungs may undoubtedly occur, its true frequency must still be regarded as unsettled, while the mere cultivation of monilia from sputum, necessarily admixed with saliva, can be of no essential significance whatever. Where the fungus can repeatedly be demonstrated in abundance in direct films of fresh and otherwise satisfactory specimens the case is different, and it is very much to be hoped that the workers interested in this subject may pursue such cases by every possible means in order to define the morbid condition underlying them. In pulmonary tuberculosis evidence of the extent of invasion by monilia should at least sometimes be obtainable in the post-mortem room: no feature of this subject is more regrettable than the lack of morbid anatomical data to support and elucidate bacteriological findings.

[1] *British Medical Journal*, 1933, i, 917.
[2] *Journ. Amer. Med. Assoc.*, 1928, xci, 1346.
[3] *Amer. Journ. Pub. Health*, 1930, xx, 1.

THE BRITISH ASSOCIATION

Sir Frederick Gowland Hopkins will preside this year over the annual meeting of the British Association for the Advancement of Science, which is to be held at Leicester from September 6th to 13th. He will deliver his presidential address on the evening of September 6th, taking as his subject "Some Chemical Aspects of Life." Thirteen Sections have been organized for the transaction of the scientific business of the meeting. They are: mathematics and physics, chemistry, geology, zoology, geography, economics, engineering, anthropology, physiology, psychology, botany, education, and agriculture. Professor E. D. Adrian, president of the Section of Physiology, will deliver an address on the activity of nerve cells, and other topics to be discussed in this Section include Roaf's theory of colour vision, ossification, phases of leucocytic and erythrocytic activity, carbon dioxide transport in blood, the chemical control of the circulation, and various aspects of genetics—the last in conjunction with the Sections of Zoology and Psychology. Among the psychological subjects are the early development of language in the child, disorientation and vertigo (in conjunction with the Section of Physiology), vocational selection, the psychology of personal influence, narcosis and mental function, alterations in blood distribution during mental work, some clinical aspects of stuttering, the predictive value of school examinations and psychological tests, and the function of the psychologist in the administrative scheme. The president of this Section, Professor F. Aveling, will deliver his presidential address on the morning of Friday, September 8th, his subject being "The Status of Psychology as an Empirical Science." Evening discourses will be given to members by Sir Josiah Stamp on "Must Science Ruin Economic Progress?" and by Professor Jocelyn F. Thorpe on "The Work of the Safety in Mines Research Board." Sir Henry Fowler will deliver a public lecture on "Transport for a Century," and Professor Julian Huxley one on "Ants and Men." Delegates of the societies in correspondence with the British Association will meet on two days to receive a presidential address by Dr. R. E. Mortimer Wheeler on the centralization and control of research in its relation to learned societies, and to consider the effect of pollution on the fauna and flora of rivers and the responsibility of local societies therein; meteorological observations and records in remote localities; and zoological surveys. An annual report will be issued after the meeting, containing the presidential addresses in full, reports of the research committees of the Association, a summary of the transactions of the Sections and of the evening discourses, together with the report of the Council. The usual receptions, entertainments, and excursions of general and scientific interest have been arranged.

COLOUR VISION

The Medical Research Council has done a useful piece of work in publishing a bibliographical survey of recent experimental work in *Individual Differences in Normal Colour Vision*.[1] The survey has been carried out with great skill and judgement by Mr. W. O'D. Pierce of the National Institute of Industrial Psychology, and will be of real service to all Mr. Pierce's colleagues in this field of work. The existence of individual differences in colour discrimination has been known for a long period. The differences between the colour "normal" and the colour-blind have necessitated the construction of selection tests for the detection of certain differences in colour discrimination. Recent experimental work in vision, as well as in other sensory fields, has established the fact that among normal persons many individual colour differences occur. Visual responses are highly susceptible to changes in experimental conditions, so that a rigid control of these experimental factors is necessary to give consistent results even for the same observer. A consistent result

[1] Medical Research Council. Committee on the Physiology of Vision. No. XI. By W. O'D. Pierce. H.M. Stationery Office. (Pp. 96. 2s. net.)

does not necessarily mean an exact repetition of a previous reading ; it may be a series of varying readings, the probable error of which indicates that they are significantly different from subsequent results. A difference of this type is called an *individual variation*. Thus if varying readings are given under the same experimental conditions by the same subject, then the change found is reported as an individual variation. When, under the same experimental conditions, different subjects give significantly different results, then an *individual difference* is reported. It will be obvious that differences of this order are of great importance in industry. They can only be dealt with by statistical procedure ; therefore only those cases in which a number of subjects were used have been brought into account. In earlier papers there was less rigid experimental control, so that work done since 1910 up till 1930 has been reviewed. The aim of the author has been to give an account of recent experimental work from the specific viewpoint of individual differences, so that workers on colour vision or on the development of selection and other tests for colour discrimination, whether for the Government services, medical practice, or general industrial purposes, may have this information readily available. One hundred and one papers are summarized. Consideration is given to colour-brilliance, hue, and saturation, and also to differences in "after-excitation" phenomena, and colour fields. It is impossible to give any satisfactory impression of the wealth of material collected. Some parts are highly technical, while others are readily appreciable, as, for example, the work of Staples last year in studying the responses of infants to colour. Two hundred and sixty-two infants from 69 days to 2 years were observed and their responses noted, a number of school children and adults being employed as controls. The colours were presented on a grey background. In the case of infants too young to grasp, the time they looked at the colours was observed ; when possible, grasping of the preferred colour was noted. The earliest age of distinction was 3 months. Probably by 12 months, and certainly at 15 months, saturated red, yellow, blue, and green are seen clearly. The findings in regard to the effectiveness of various colours as stimuli were notably consistent from child to child ; therefore, it is held, this cannot be due to chance or training. A sex difference was found. Girls lost interest in yellow and gained it in blue, which was at its maximum effectiveness at 19 months ; in all groups girls showed a higher positive response than boys, which, it is thought, may be due to earlier general physiological maturity.

ROYAL SOCIETY OF MEDICINE

The annual report of the council of the Royal Society of Medicine, presented to the recent annual general meeting of Fellows, states that the roll of the society now includes 4,967 names, the great majority being those of Fellows. The number of meetings of the society held last session was 166, comparing with 183 the year before. The number of readers in the library during the year was 44,391, and the number of books borrowed for home use was 28,679. The income of the society for the session was £22,473, an increase of £144 on the previous year, and it is explained that this relatively small increase in income is due to the fact that the financial crisis caused many more resignations than usual, though, fortunately, the accessions to the society outnumbered the resignations and deaths. The total expenditure was £506 less. The more important sectional and general discussions have been reported in these pages during the year. In an account of some other work it is stated that the Section of Otology has completed its investigation on hearing tests, the Section of Radiology has prepared a report on the scientific aspects of radium and *x*-ray therapy, and the Sections of Obstetrics and Gynaecology and of Anaesthetics are preparing a report on the administration of chloroform by midwives. At the request of the India Office the council of the society has considered the report of the Indian Drugs Inquiry Committee, and the Section of Therapeutics and Pharmacology has prepared a memorandum on the subject, which has been forwarded, through the India Office, to the Government of India.

THE CELLULAR REACTION IN ALLERGY

The relation between allergy and immunity is one of the most freely discussed problems in tuberculosis. There are facts, such as the behaviour of the probationer nurses at Oslo, that point very definitely to allergy as being a stage in the development of immunity. There are other facts, such as the behaviour of the native mine labourers on the Rand, that point to a diametrically opposite conclusion. Experimentally, workers are divided, and the data so far collected seem to bear either interpretation. It is possible that the relation is not simple but complex, depending on the particular circumstances operating in a given host at a given time. While a high degree of sensitivity might be beneficial in localizing an exogenous reinfection, it might lead, as Wingfield[1] has suggested, to such an intense reaction after an endogenous blood-stream reinfection as to prejudice the chances of the patient very seriously. Clearly, a great deal more work will have to be carried out before any definite conclusions can be reached. At present we shall be more usefully employed in trying to define the problem than to provide for it a premature solution. In a recent paper Dr. J. Caussimon[2] has endeavoured to ascertain the part played by the body cells in the allergic condition. Working both by *in vitro* and *in vivo* methods, he has observed a far greater cellular activity in the allergic than in the normal animal. The introduction of tubercle bacilli intraperitoneally into a healthy guinea-pig is followed by slight polymorphonuclear and mononuclear phagocytosis. In the tuberculous animal, on the other hand, the bacilli are agglutinated, there is more or less marked bacteriolysis, there is an early and intense phagocytosis by the polymorphonuclear cells, and a later phagocytosis by the mononuclear cells and by enormous macrophage cells of the clasmatocyte type. As a result of these reactions the tubercle bacilli are localized mainly to the site of inoculation. The part played by the blood serum and by the cells is not very clear, and experiments on the ability of the serum of an allergic animal to sensitize the leucocytes of a normal animal did not yield constant results. The cellular reaction varied considerably in different allergic animals ; in some the polymorphonuclear reaction was so feeble as to be almost

[1] *British Medical Journal*, February 4th, 1933, p. 179.
[2] *Ann. de Méd.*, May, 1933, p. 499.

unobservable, while in others the afflux of macrophages was insufficient to deal with the organisms present. The author points out that the cellular reaction in the allergic animal does not always lead to the defence of the host. An insufficient activity of the mononuclear and macrophage cells is incapable of producing adequate localization, while a too abundant polymorphonuclear phagocytosis may result in the rapid diffusion of the tubercle bacilli throughout the viscera. The allergic reaction is of value to the host only if the polymorphonuclear phagocytic reaction is followed by a sufficient influx of mononuclear and macrophage cells to limit the infection to the local site. Depending on the balance of activity of these two groups of phagocytic cells, allergy may be regarded as a state of greater resistance or greater sensitivity. However favourable its manifestations, it cannot be regarded as identical with immunity.

THE OLD COAL MINER

A little book by Dr. Enid Williams, on the health of old and retired coal miners in South Wales,[1] sets forth the findings of a type of medical investigation which ought to become more frequent in the future. Instead of falling a victim to the lure of statistical interpretations of records based on the Registrar-General's figures, Dr. Williams has worked out her observations on living persons outside the populations of hospitals: old retired coal miners, living in humble but hospitable homes, or taking the air along with their fellows in the slow and laborious perambulations imposed by the dyspnoea of pneumonoconiosis. "In the public park at Aberdare," she writes, "there is a little lake surrounded by benches and shelters. Groups of old miners smoking quietly are always to be seen either sitting on these benches or walking slowly round the lake." It was among these old fellows that Dr. Williams found the material for her interesting and valuable report. Thanks to the kind co-operation of the panel practitioners, the colliery officials, and to the old miners themselves and their wives, it was possible to reconstruct with considerable success the industrial histories of a hundred ex-colliers, the work being carried out partly in the steam coal areas and partly in the anthracite villages. In the case of each man the physical signs, the weight, chest expansion, blood picture, and, in most cases, the sputum findings, were worked out and co-ordinated; and it was also found possible, with the help of the tuberculosis officers of the Welsh National Memorial Association, to obtain *x*-ray films of a certain number of the cases. Details of the individual findings are given in an appendix to the report. Dr. Williams concludes that, among the hundred examined, thirty-two were to be regarded as definitely pneumonoconiotic; another thirty-one as probably so. That this is not an over-estimate will be conceded when we read that "84.5 per cent. of the miners examined were dyspnoeic, 76 per cent. had cough, and 54 per cent. sputum." The liability of the collier to bronchitis has long been recognized, and Collis has rightly stressed the fact that this bronchitis is to be regarded as "the pneumonoconiosis of the collier." But it has been held also that this bronchitis is a relatively benign condition, thus affording a sharp contrast to the pneumonoconiosis of gold miners and other workers exposed to dust containing a high proportion of free silica, in which there is a well-recognized risk of phthisis. This contrast is rendered less striking by the observations now published; and, indeed, it will be necessary to examine with a new measuring rod many of the current theories about the role of free silica as such, now that we possess the recent findings of Dr. Jones of the Royal School of Mines as to the importance of sericite. Here it need only be said that Dr. Williams has established the fact that a rather large proportion of these old miners, though in good general health apart from their dyspnoea, are, in fact, tuberculous. Six out of the hundred were actually convicted as "sputum-positive" on a single examination of the sputum, and it may be assumed that the number would have been larger if repeated examinations had been possible; while the blood picture suggested that at least another twenty-six were more or less active cases. "Thirty-three of the miners examined had a history of definite tuberculosis in the immediate family. Forty-two per cent. of these had lost children of the disease." From this it would appear that there is much more tuberculosis among these colliers than had hitherto been supposed. It is not so much in the incidence of tuberculosis that they differ from the gold miners as in their tendency to a more benign and less fatal type of tuberculous disease. It is hard to avoid the conclusion that the coal dust inhaled along with the stone dust by workers in the coal mines has a detoxicating property of sufficient importance to save the collier, not from the tuberculosis which invariably goes with silicosis, but from its toxic effects. Much more work is needed as to the incidence and type of tuberculous disease, of a clinically disguised type, among the older age groups of our town populations; and, until some more evidence is available on these lines, it must remain impossible to apportion to the work of Dr. Williams its exact significance. Her subdivisions of 100 cases reduce her groups to minute proportions and suggest caution in regard to some tempting conclusions; but the main findings, as summarized above, are beyond dispute, and must be regarded as of great importance.

[1] *The Health of Old and Retired Coal Miners in South Wales.* By E. M. Williams, M.D. Investigation carried out while holding the Cecil Prosser Research Scholarship in the University of Wales. Cardiff. University of Wales Press Board. (6s. net.)

THE EDUCATIONAL NUMBER, 1933

Our next issue, dated September 2nd, will be the annual Educational Number of the *British Medical Journal*. Its contents, as in previous years, will include a full account of the requirements of the General Medical Council and of the universities and other licensing bodies in Great Britain and Ireland, as well as information about the opportunities offered by the various medical schools and other teaching institutions, and the fees charged by each. The details given have been revised and brought up to date by the authorities concerned. These sections, the object of which is to furnish a handy guide to intending students of medicine, are supplemented by articles intended for newly qualified practitioners on such matters as post-graduation study in Great Britain, the public medical services, tropical medicine, psychological medicine, and the various special diplomas. The opening article for this year's Educational Number is by Dr. E. Kaye Le Fleming; it is entitled "The Practitioner and the Public."

CHARACTER IN YOUNG DELINQUENTS

AN APPROACH FROM THE CRIMINAL GANG ASPECT *

BY

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In a recent publication[1] Professor McDougall has described character as "that part of the personality which is specially concerned in action, which manifests itself most clearly in the higher forms of volition, and which is gradually developed in and through social intercourse." Character, in this special sense, together with intelligence, temperament, disposition, and temper, constitutes the personality, in the opinion of this authority, and he is at pains to differentiate character from that which is represented by the "sum total of those features, properties, or qualities of an individual organism (or of a species or other natural group) which are peculiar to it and serve to distinguish it from other individuals, species, or groups." The first of these quotations forms the basis of the present study.

The great primary instincts, which may be regarded as forces causing prolonged states of psycho-physical tension, are the sources from which character, in common with other mental qualities, draws the energy upon which its activity depends. Among these instinctive forces are certain broad trends disposing the individual towards life within the community, and, in conjunction with the intelligence, determining the extent to which he is capable of adapting himself to it. Their object may be solely of a protective nature, or, as seems more probable, they may initiate and sustain a process by which the boundaries of the self-regarding sentiment are extended, and those ideals of conduct are acquired which are inaccessible to the individual but are essential to the evolution of the race.

It would appear, therefore, that in carrying out their functions, these trends act as a counterbalance to promptings of an asocial kind, which thus meet with obstructive influences both at instinctive levels and at higher ones. In these higher planes there is found a tendency to invent apparently logical reasons for the influences of instinct, and to attribute the ensuing impulse to those reasons, without always recognizing the fact that they are not the original motives. Conscious awareness of this process is, to some extent, inversely related to the strength of the emotional tone with which the fundamental urge was invested. In the case of motives of the herd type this mechanism appears to have been largely responsible for the development of codes of conduct which are acceptable to the community, and by means of which man satisfies himself that his attraction towards membership of the herd is the outcome of his reasoning and is subject to his volition. The prevalence of such codes, notwithstanding the wide dissimilarity to be found among them, suggests that their final cause is deep-seated, and that they are not merely conditions imposed on the individual in exchange for the privilege of living within the community to suit the requirements of the moment.

The presence of a fairly well-defined age-level at which the child's egocentric point of view is replaced by one in which social considerations predominate, and the advance from principles of a purely utilitarian nature to those based on ethical and moral sanctions, indicate a gradual process of identification with a progressively widening conception of community life. It is owing to the probability that small groupings are of an earlier evolutionary period than large ones that they are more closely knit and their presence within the larger herd is possible. Domestic allegiance, as the first to be acquired, is the most permanent, and the closer the identification with it the more difficult is its extension to the general community apt to be.

Experience shows that, provided the objective is sufficiently attractive and distinct, it is not a difficult matter to evoke a strong morale in adolescents, many of whom may have had little or no previous knowledge of the significance of group membership. Experience also shows, however, that, as a result of treatment, where the greater rigidity of the rules and conventions of a small group has been found to be particularly suited to the lad's attainments his subsequent adjustment to the community at large may be one of considerable difficulty. It is probable that, among youths of this type, gang delinquency, where a common risk is shared, provides an objective, and the reduction in the feeling of personal responsibility which accompanies adherence to a group supplies an incentive and helps to unite its members. The racing gang, which was much in evidence a few years ago, is an example of anti-social grouping of this kind, and in convicts serving terms of penal servitude, where the environmental factor is more prominent, a similar uniformity of emotion is attained.

HEREDITY, ENVIRONMENT, AND THE DELINQUENT

The relative importance of environment and heredity in the causation of crime has recently been tested by Professor Lange[2] in mono-zygotic and di-zygotic twins; the former, in the proportion of ten to three, were found to show a close resemblance in the nature of the offences committed by each twin, while in the latter, in the proportion of seventeen to two, the position was reversed. The limited effect of environment was also shown in a further comparison between these dissimilar twins and other siblings.

Whatever instinct is sufficiently dynamic to obtrude itself with abnormal force and frequency tends to provoke in the mind of its possessor, to a corresponding degree, a feeling of antagonism to his surroundings, which is apt to affect his attitude towards the community. On the other hand, where all instincts are relatively weak, the environment would appear confused and perplexing, not infrequently leading the subject to take a fatalistic view of his position.

The foregoing suggestions, even when full allowance is made for the selective action of the individual on his environment, do not afford an adequate explanation of the increase in adolescent crime which occurs during periods of economic difficulty. It is upon the feeling of uncertainty and apprehensiveness concerning the future, arising from the persistency of large-scale social problems such as those of industrialism, that responsibility for this appears to rest, for the necessity for social equilibrium and continuity of purpose is at no time more urgent than in the unstable period of adolescence. Adjustment, in the absence of certain standards by which to effect it, is thus rendered more difficult, and maladjustment, in these circstances, is conducive of crime, if it may not be said to be synonymous with it.

The effect of an adverse environment can only be measured in general terms, but with the object of ascertaining the local environmental influences which are detrimental to the adolescent, and the features which affect his susceptibility to them, a large number of young offenders have been systematically examined. One thousand of the records of these cases have been taken to form a background for the subject at present under review. Included in this number are thirty groups or gangs, in which three or more lads were concerned together, totalling one hundred cases. In every case the homes from which they came were visited by experienced field workers, and a detailed account of the family history was obtained from the parent or guardian. Observations on the condition of the home and its surroundings, and full particulars of the health, morbid conduct, companionships, employments, and amusements were recorded in the form of cross-sections at different age-levels. This, and the parent's opinion of the lad's reaction to these influences, were compared with the statements obtained from the lad himself, and the opinions formed in his medical examination.

As a result of this investigation no striking departure from the normal was found, except in connexion with physical and mental development. Standardized physical measurements disclosed a slight but definite inferiority

*Part of a paper read at a meeting of the Chelsea Clinical Society, January 17th, 1933. Published with the consent of H.M. Prison Commissioners, although not necessarily representing their views.

in physique, which, although not accompanied by signs of disease or a history of past illness in excess of the normal, indicated a possible reason for concerted, as opposed to individual, actions. To some extent, however, this reduction in the standard was discounted by the relatively high degree of vital capacity which Dreyer's method of estimation revealed.[3] The mental age, when compared with that of the prison control group, showed an average reduction of two years, the figures being 12 and 14 years respectively. In this connexion it may be noted that in the investigation of Doctors Grierson and Rixon in 1926,[4] into the intelligence of the ordinary adult male remand prisoner of not more than 35, the average mental age was also found to be 14, this figure being equal to that ascertained in the general population by the authors of the *Report on Mental Deficiency* of the Boards of Education and Control in 1929. The incidence of mental or temperamental abnormalities in the family histories of the present cases amounted to 20 per cent.

No remarkable difference was found between the adolescent offenders examined and the average lad in respect of home conditions and upbringing. In the absence of figures relating to a control investigation on a comparable scale among law-abiding persons of similar age and status, and bearing in mind that investigators elsewhere have found a bad environment in 58 per cent. of their criminal cases,[6] this statement is made with reserve. In so far, however, as it is possible to gauge correctly what constitutes favourable or unfavourable conditions in the home and upbringing of delinquents, and to make comparison with the home and upbringing of non-delinquents, there are good grounds for supposing this statement to be true. In almost every case in the present series the lad's reaction to these conditions was tolerant. It cannot be said that other environmental influences, such as companionships, were as favourable, for in 37 per cent. the associates were unsatisfactory, and many of the cases showed little sign of resistance to their influence.

Instincts and Delinquency

Physical, mental, and environmental conditions, however, are not individually accountable for more than a small percentage of the total crimes committed. The majority of offences, as would be supposed, depend on the interaction between certain inherited traits and combinations of external influences which bring about situations favourable to the exhibition of those traits. Among these inherited tendencies the self-assertive instinct takes a prominent place, and the investigation showed that in about half the cases it was finding expression in an immature manner, while the fact that crimes against property accounted for 90 per cent. of the offences indicated the channel through which it emerged. Destitution, on the other hand, was only present in one of the cases, and clearly had little influence on the general result. Acquisitive crime, however, is not the prerogative of the gang delinquent, for it occurred in 96 per cent. of the prison control group. The urge to compete with and rival others, the fear of risking taunts, and the desire for adventure, may find expression in games or club competitions, but, in the absence of adequate drainage through ordinary channels, they can also be satisfied by acts of delinquency with others. A state of physical and mental inferiority, in association with a relatively high vital capacity, apart from other reasons, tends to create an increased demand for compensation of one kind or another. That the acts were of a boyish or childish nature in approximately half of the total number of cases, although the average chronological age was 18.2, suggests, however, that those who committed them showed a considerable delay in the development of the normal adolescent outlook, so far as the self-assertive instinct is concerned, and, incidentally, that personal rivalry was a frequent objective. This, in conjunction with the fact that in roughly one-third of the cases acquisitiveness was estimated to be of low potential energy, supports the view that in a large percentage the crimes were not the direct result of persistent acquisitive urges.

If it be admitted, then, that certain gang features in delinquency can be attributed to the self-assertive instinct, the theory that all such formations arise from one instinctive source cannot be sustained, unless the view be held that, because of its anti-social nature, it is therefore not a true type of grouping. Such a view, however, does not take into account that appetite satisfaction, followed by personal and social rivalry, is believed to be the normal sequence in the evolution of instinctive trends towards socialization. In throwing in his lot with a gang it is suggested that the lad is, in fact, activated by these trends, however immature his sense of social obligation may be, and that his association is neither fortuitous, as a rule, nor attributable to a purposive attempt to counteract his physical and mental inferiority, if indeed he appreciates it. This conclusion is supported by the high incidence of gregariousness as a natural tendency of the personality. The limited extent of the delinquents' identification with the gangs was disclosed by their reaction after arrest, when sixty-six showed that their sympathies were but loosely attached.

Rationalization and the Attitude of the Criminal

In other circumstances, in order to relieve themselves of a position which is causing them uneasiness owing to a difference of views, individuals tend to gravitate towards an association where the system of opinions is more nearly in accord with their own, or, failing this, to convince themselves that the retention of membership of the group is based on grounds of reason. Reference has already been made to this mechanism by which an instinctive impulse may be invested with the qualities of an impulse which is based on rational grounds. In the majority of young offenders the quality of the act is poor, but the necessity to justify their conduct is generally present. An extreme instance of this search for justification occurs in older prisoners who have been convicted on a capital charge, and whose death sentences have subsequently been commuted to terms of penal servitude, where, given a suitable predisposition, a psychosis may be built up on an assumption of innocence which is the outcome of a rationalization. This assumption is not infrequently reinforced by the defending counsel's argument, and also by the remission of the death sentence.[7] Prisoners of this type are very rarely recidivists.

The treatment of the young delinquent may fall short of its object owing to the action of this process of involuntary self-deception. He may genuinely desire to overcome his anti-social tendencies and to give his confidence to those who are guiding him, but the fact that in many cases his object is to secure the privileges which a place in society would afford him, without fully realizing their nature and the obligations they entail, supplies the reason for his return to irregular conduct when the advantages he expects are not forthcoming. In other words, he wants to be compensated for the abandonment of his anti-social propensities, and he is aggrieved when his imaginary contract is not honoured. He generally fails to realize, however, that he has weighed in the balance of experience the advantages and disadvantages, in his present position, of the more or less direct gratification of his self-assertive urges, and has found that the latter preponderate. The result is a temporary adaptation to circumstances which is incapable of withstanding the stresses which his liberty will impose on it.

The tendency to bargain, both consciously and subconsciously, is unusually well marked in the recidivist, who often appears to believe that his adaptation to his prison surroundings is a concession on his part which should be reciprocated on the part of society, and, if the tendency is less often due to vanity in the young offender, and is less often consciously employed by him, its underlying influence is not infrequently observed. Where, as is sometimes seen in the premature abandonment of resistance by the institutionalized adolescent, a repression of self-assertive impulses occurs, this tendency to bargain disappears, leaving behind it a deep and permanent anti-social bias.

Rationalization and Character Formation

Rationalization is not a mechanism confined to the unintelligent. It necessitates the presence of a thought process of a quality which is capable of checking the direct

emergence of crude instinctive forces, and so of modifying the demands of the individual. These rationalizations range from those which are designed to meet the exigencies of the moment to those which involve considerations of a high order. The recognition of the fact that a modification of conduct so obtained requires the submission of the motive to a tribunal over which the individual has no control, thereby recognizing its authority over him, is in the province of the intellect. It is also a function of the intellect to modify the rationalizations in the interests of the individual. The willingness to make the submission, and the refusal to acquiesce in a compromise, between the demand of a primitive instinct and the verdict of the tribunal, or, as a result of such compromise, to forfeit any part of personal responsibility for acts contemplated or committed, requires the presence of another faculty. This faculty, although closely connected with it, is not a part of the intellect in that it presupposes the active existence of a principle which is independent of experience. It is thought that this principle can be acquired as a result of the identification of the individual with the social and ethical standards of a composite body with which he is in sympathy. Roback[8] suggests that this principle is an abstract conception which he calls justice, interposing it between reason and act, a point of view which would appear to be incomplete in that, if rationalization be accepted as one of the criteria of character, it implies a recognition of the right of others to criticize the motives of the individual, and so of a desire on the part of the individual to conciliate what he regards as paramount in public opinion. Justice, furthermore, has not that closer relation to the prime purpose of the group which McDougall's "active sympathy" connotes.[9]

The tribunal itself is some part of the environment of the individual, but whether it be domestic, tribal, or not, his recognition of its authority identifies him as a member of a social organism composed of like-minded persons, and the structure of this organism determines the mode in which it must express itself, and therefore the quality of the character of its members.

The community is represented at the lowest end of the scale by the social problem class, as described in the report of the Boards of Education and Control. This class is distinguished by its mental inefficiency and its incapacity for social adjustment, and is estimated to form 10 per cent. of the population. While not in itself composed of mentally defective persons, it is believed to supply in its descendants a large proportion of actual defectives, recidivists, prostitutes, and unemployables. The prevalence of strong egocentric tendencies, such as is found among recidivists, would render adaptation of considerably greater difficulty, even in the lowest social environment, than would be the case in a member of a group where some recognition of the principle of common ownership obtained, whether or not this were limited by inferior intelligence or poorly adjusted self-assertive tendencies.

It was evident from the investigation into the records of the cases that gang delinquents, as a whole, do not spring from this class. It may therefore be inferred that they, as a type, exhibit an innate capacity for character development in advance of that of habitual offenders as a class and of members of the social problem group, although such capacity is usually of a low grade.

The present study shows that a complete examination of a case in all its aspects, together with full corroborative evidence from other sources, must be undertaken if an accurate estimate of the character of an individual is to be obtained.

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THE PUBLIC HEALTH YEAR

ANNUAL REPORT OF THE MINISTRY OF HEALTH

The period covered by the fourteenth Annual Report of the Ministry of Health* represents the first full year to have been affected throughout by the economy measures which followed the financial crisis of the autumn of 1931. In the part of the report which concerns the health services, however, there is not much reflection of any unusual stringency. The Ministry quite early made it clear that there was no intention that local authorities should embark on any wholesale and ill-considered cutting down of expenditure on essential health services. In the present report, in dealing with maternity and child welfare, pleasure is expressed that returns from local authorities show no sign of any reduction in these services on the ground of economy, and that they indicate a gradual development throughout the country.

"He [the Minister] would regard as ill-considered any contraction of existing services or any failure to pursue a policy of steady development for the essential needs of these services, and in particular he would regret any short-sighted reduction of the skilled services engaged in this work, such as those of medical officers or health visitors, which would lessen the advice and assistance available for the nursing and expectant mothers and children who come within the scope of the services."

Under the heading of "National Health Insurance" we have already dealt with the section of the report which concerns insurance practice (see *Supplement*, August 19th, p. 145); the other sections have to do with public health, housing and town planning, local government finance, and administration of the Poor Law. We learn that at the end of last year there were 21,275 beds available for the treatment of tuberculosis in institutions belonging to local authorities in England, and 8,151 in approved institutions belonging to voluntary bodies. The number of new cases of pulmonary tuberculosis given in the returns for England and Wales for 1932 was 51,836, and of non-pulmonary 17,956, the lowest figures since the present method of making returns was adopted ten years ago. The deaths also—27,627 from pulmonary and 6,031 from non-pulmonary tuberculosis—were the lowest ever recorded. The death rate is 687 and 150 respectively per million of population.

The attendance at the 177 approved treatment centres for venereal disease during the year reached a total of 2,984,270—somewhat in advance of the previous year. The number of new cases found to be suffering from venereal disease was 50,824, a fall of some 1,600, equivalent to a decrease in the number of new cases of syphilis of 2.98 per cent., and of new cases of gonorrhoea of 2.67 per cent.

With regard to infectious diseases, there were increases in the number of notified cases of dysentery, enteric fever (including paratyphoid fevers), and scarlet fever. The deaths from scarlet fever, however, were fewer, though measles and German measles, as to which no case figures are given, showed a higher mortality. The noteworthy features of the year were the continued high incidence of, and mortality from, cerebro-spinal fever (2,136 cases and 1,213 deaths), the further reduction in the incidence of, and mortality from, diphtheria (43,399 cases and 2,340 deaths, as against 50,236 cases and 2,673 deaths in 1931), the large increase in the incidence of, and mortality from, acute poliomyelitis and acute polio-encephalitis, and the continued decline in the incidence of small-pox, of which there were only 2,039 cases in 1932, with three deaths. The number of deaths from small-pox was the lowest recorded since 1918. The vaccination figures relate to 1931, the latest year for which complete information is available. Only 39 per cent. of the children born during that year were vaccinated, and the declarations of conscientious objection equalled 46.7 per cent. of the total births. Several cases of leprosy came to the notice of the Ministry during the year, the disease having in each case been contracted

* Fourteenth Annual Report of the Ministry of Health, 1932-3. H.M. Stationery Office. (5s. net.)

abroad. There were two serious outbreaks of typhoid fever, both in Yorkshire, and both due to infection of the water supplies.

The number of local authorities carrying out schemes of maternity and child welfare is 388. The rate of maternal mortality per 1,000 live births was 4.06, being 1.54 for deaths from puerperal sepsis and 2.52 for deaths from other causes. This figure for 1932 represents an increase of 0.12 over the figure for 1931. While it is recognized that no special significance can be attached to this and to other small variations in the last few years, the maintenance of the high mortality rate at approximately the same level over a period of years should serve to remind local authorities of the importance of developing and completing their maternity services. The number of ante-natal clinics provided and maintained by local authorities is now 1,060, to which should be added 217 clinics provided and maintained by voluntary associations. The total number of women who attended these clinics during 1932 was 222,077, as compared with 197,269 the previous year. In thirty-five large towns and metropolitan boroughs the number of women attending the clinics during 1932 represented over 50 per cent. of the number of births notified during the year, and in only seven towns in the country was the attendance less than 20 per cent. of the number of notified births. The total maternity bed accommodation in institutions belonging to local authorities and to voluntary associations is 7,119. The rate of infantile mortality in England and Wales was 64.6 per 1,000 births. It is pointed out that, after the steady progress of reduction in the rate during the last few decades, the variations now tend to reflect less the direct influence of maternity and child welfare work than the influence of climatic and related factors.

During the year under review sixty-five new appointments of medical officers of health were approved by the Minister, and at the end of the year 396 out of 1,165 medical officers of health in England held whole-time positions. It is emphasized in the report that when a vacancy occurs in one of these posts the field of selection open to the local authority should be as wide as possible, and that the vacancy should not necessarily be filled by the appointment of an officer who is already on the staff of the authority.

"The Minister is glad to note that many authorities advertise for candidates for these appointments in the medical press and otherwise, and if this is not done doubts will inevitably arise as to whether the best appointment has been made."

The tragedy of unemployment is reflected in the figures for Poor Law relief. The number of persons in receipt of institutional or domiciliary relief in 1932 averaged 1,263,624, or 316 per 10,000 of the population, as against 1,046,079, or 262 per 10,000 of the population, the previous year. The total expenditure on public health of all local authorities in England and Wales during the last year for which complete returns are available was £42,438,336. This includes hospitals, sanatoriums, dispensaries, salaries of medical officers of health, sanitary inspectors, health visitors, maternity and child welfare, baths and washhouses, parks and pleasure grounds, public conveniences, sewage disposal, collection of house refuse, port sanitary services, and welfare of the blind. It does not include expenditure on mental hospitals and mental deficiency, for which a further £10,756,451 has to be added, nor does it include housing and relief of the poor. Roughly, we spend as much on health and mental services as we spend on roads and bridges.

The clinical report of the East End Maternity Hospital for 1932 contains the usual statistics, including details of the six maternal deaths—four in the institution and two in the district. During the year under review 1,466 in-patients and 472 out-patients were delivered. There were twenty-six cases of puerperal pyrexia, twenty-one of accidental haemorrhage, and three of placenta praevia. The attendances at the ante-natal clinic totalled 11,515.

Nova et Vetera

THE FRENCH CAMPAIGN IN ALGERIA, 1830-48

When the French expeditionary force landed in Africa in 1830 no one thought the campaign was to last eighteen years, as it did, nor that it would cost France the lives of 100,000 men, some of them, of course, by enemy action, but by far the majority from disease. In fact, the deaths from disease were so serious, especially in the early years, and were so disabling to the army, that some even of the generals feared the enterprise would have to be abandoned. These remarks are prompted by the reading of a recent paper on the medical history of the campaign[1] by Médecin-en-chef Hamet, which shows, as a warning, the disasters which may arise from unsound pathology and consequently inadequate therapeutics.

When the expedition landed there were soon wounded to be treated, and many cass of diarrhoea and dysentery quickly appeared, ascribed to the cold nights following the scorching days. Then, as the summer advanced, cases of fever became numerous, and after the capture of Algiers a third of the army was in hospital. This terrible morbidity increased, and when Bona was taken next year (1832), there was one regiment of 2,400 men which had 1,600 of them sick.

To explain the situation Dr. Hamet discusses the conception of fevers which then obtained in France. In the seventeenth century, he says, quinine became known to the profession, and fevers were divided into those amenable and those non-amenable to quinine. In the early eighteenth century an Italian, Torti, observed that of the fevers curable by quinine some were intermittent, and some were, as he said, subcontinued ; of the latter some were apt to be fatal, and these he called "malignant subcontinued." By the end of the century Lind and Pringle had separated the seasonal (autumnal) fever of camps ("the slow nervous fever") now named typhoid, from the pestilential, non-seasonal fever of overcrowded prisons and hospitals now called typhus. He adds that Cullen, whose ideas were widely accepted in France, thought that fevers were caused by two vapours—the first a vapour of marshes, the second a vapour of men ; the first, said Baumes in 1821, intermittent or remittent, due to marshes and curable by quinine, the other, continued, due to dirt or overcrowding, and called putrid or nervous fevers. "The confusion was on the point of being cleared up" (Kelsch and Kiener). In 1829 Louis differentiated typhoid exactly, but it was not he who in 1830 dominated French medicine, but Broussais, a most impressive lecturer and the professor of medicine at the Army Medical School at Val-de-Grâce. He asserted that there were no specific poisons of fevers, but that fevers were the outcome of the irritation of organs, and that the initial lesion was a gastro-enteritis, the other evidences noted in each depending on the "sympathies" of the organs involved. At this time Bailly went to Rome to study the post-mortem appearances of intermittent fevers, and reported that in every case he found a gastro-enteritis, with enlargement of spleen, etc., which strengthened the position of Broussais, whose treatment of all fevers was to reduce the patient by low diet and bleeding. So widely was this treatment adopted in France that in 1827 there were thirty-three millions of leeches imported at a cost of 2s. 6d. each. Confirmed by the report from Rome, Broussais added, Why administer irritating quinine to a patient with a gastro-enteritis so severe? In any case only give it in small doses (5 grains) and never in the acute stage. Treated on these lines, and all the junior medical officers had just come from Broussais's class, official medicine had little help for malarial cases, and the mortality in the hospital at Bona was 11 per cent. of cases received in 1831 and 22 per cent. of those received in 1832.

Luckily a new medical officer was appointed in charge of that hospital in 1833. His name was Maillot, an older man and already acquainted with malarial fevers.

[1] *Arch. de méd. Navales*, 1932, cxxii.

He recognized the cases in hospital as examples of Torti's malignant subcontinued, and saw they should have plenty of quinine from the first. He also reduced them, bleeding them 15 ounces at once, and applying thirty leeches wherever there was need, to the epigastrium, for example, or to the temples or along the jugular veins to relieve congestion of the brain. His treatment was far more successful than that previously employed, and the hospital mortality fell to 5 per cent. The General Officer Commanding, very pleased, recommended Maillot for the Cross of the Legion of Honour, which was given him four years later, but not till he had been first accused of seeing malaria everywhere (this was true, but better than not seeing it at all), of causing ulceration of the colon, and of killing the soldiers. But his treatment was soon adopted everywhere in Algeria. Dr. Hamet thinks it was Maillot's medical insight and therapeutic courage that made the conquest of Algeria possible and its subsequent colonization a success, and desires that he shall be remembered at this time of celebration of the centenary of the occupation.

Dr. Hamet adds a short note that has even greater interest to us, explaining how A. Laveran, a medical officer in Algeria, came to discover the parasite of malaria. The search for some pathognomonic evidence that a fever was malarial was attracting the attention of all observers. The characteristic formation was the malarial pigment—small masses of melanin—and it was when studying its appearance in fresh blood that Laveran in 1880 first saw the malarial parasite, so delicate he could not believe that it could live alone in the world, but must have another host outside the human body.

W. E. H.

Ireland

Down Mental Hospital

In the course of his annual report the resident medical superintendent of the Down Mental Hospital, Dr. M. J. Nolan, states that of the fifty-two certified patients discharged forty-four were recovered and eight relieved. Of the certified patients thirty-six males and twenty-six females died during the year, which represented a rate per cent. (on the daily average number of patients resident) of 8.6 for males and 5.2 for females—total, 6.9. Cases under care during the year numbered 490 males and 464 females. It was satisfactory to note, states the report, that the provisions of the new Mental Treatment Act with regard to voluntary and temporary patients had been availed of sufficiently by both male and female patients to test its working in practice. Both voluntary and temporary patients, who would, before the passing of the Act, have been certifiable, had submitted themselves to treatment; and in the case of voluntary patients, although well aware that they could leave after seventy-two hours' notice, they were anxious—even in their acutely disturbed mental condition—to try out the treatment provided for them. The new occupation therapy department on the female side provided much-needed elasticity in the dormitory arrangements, and also permitted of specialized treatment of such paying patients as might apply for admission. The new addition meant that 435 males and 440 females would be provided for, and this provision would be made at a fraction of the usual cost. The treatment of the patients had been on the usual lines, and had been greatly facilitated by the new electrotherapy and physiotherapy apparatus. The aim of the hospital was to provide some kind of useful work for all patients not acutely ill or confined to bed, and the interesting of the patients in such work required much patience and time. Tastes differed in choice of work amongst the patients, as elsewhere; hence the necessity of introducing variety in the occupations provided. On the male side the farm absorbed a large number of patients, but there was also scope in the gardens, in the special therapy department, and in the workshops, and all these activities were conducive not only to the well-being of the patients and a high recovery rate, but also to the reduction of maintenance charges in the hospital. Physiotherapy and electrotherapy treatment was being given, as prescribed by the medical officers and administered by the matron, in suitable selected cases, with much benefit not only to the physical well-being of the patients, but also to their mental improvement and the stimulation of their outlook. The average cost of each patient for the year, calculated on the gross expenditure, was £49 9s. 10d., a reduction on the cost for last year of 12s. 6d., while the net average cost per patient was £36 2s. 10d., a reduction of 14s. 11d. on the cost for the previous year, and representing an average weekly cost of 13s. 11d. per patient.

Sanitary Conditions in the Antrim Area District

The Home Ministry, Northern Ireland, has forwarded the report of its medical inspector on the administration of the Public Health Acts in the Antrim Rural Council district. The report stated that it was surprising to find in the Connor district that the keeping of calves and goats in the cowsheds was quite the rule. The lighting and ventilating of the cowsheds was very poor, windows in some cases having been converted into entrances for hens or pigeons, whose roosts were situated above the cows. Action was required to remedy matters. Dwelling-houses in the village of Connor were being neglected, and it was a common thing to find houses without spouting and with damp walls. House refuse was dumped in any convenient corner. One house which the inspector entered was found to consist of a kitchen and one bedroom. This place was occupied by seven persons—father, mother, and five children, the eldest being a lad of 19 and the next a girl of 17 years. All seven were occupying the one bedroom. These conditions, the report adds, should not be allowed to exist. Great improvements had resulted from the covering of the old mill race in the village of Doagh. Houses in the vicinity were now in very good condition, and scavenging was methodically carried out by the landlord, which showed a good example of what could be done when there was a will to do something. Doagh had a very good primary education school, but the sanitary arrangements were poor. It was decided to refer the condition of the housing in Connor village to the medical officer of health.

Uncertified Deaths in County Cork

Dr. J. C. Saunders, medical officer of health, County Borough of Cork, in his report for 1932, urges that there are far too many uncertified deaths in the country. It was actually on record that in one county over 50 per cent. of the deaths were uncertified. This implied that the bodies were interred without any form of medical certificate as to the cause of death being forthcoming. This system was open to the gravest abuse. Literally, it meant that persons were liable to come by their deaths by unnatural means, and to be interred without any inquiry into the matter. Such a state of affairs should not be permitted to exist. Dr. Saunders mentions the case of a youth of 16 years in whom the cause of death was stated to be probably gastric, and cardiac failure—"inquest unnecessary." While it was very unlikely that death in this case came about unnaturally, it was, on the face of it, obvious that there should have been further inquiry into the case, and that a certificate for burial should not have been issued in the absence of a post-mortem examination. The case would certainly

appear to be a strong argument in favour of the institution of post-mortem examination in every instance in which there was the slightest doubt as to the cause of death. Dr. Saunders adds that in his opinion it cannot be too strongly emphasized that there should be no burial in the absence of a medical certificate as to the cause of death. This is a common practice in this county, and should be made illegal. It may, however, be pointed out that the absence of a medical certificate does not go to show there was no medical attendance. The practice is that medical practitioners certify only when they have seen the patient within a few days of death. A big proportion of the cases which are uncertified are people who have died from old age, and generally do not require medical attendance. In the case of the deaths of people other than the very aged, it is most desirable that the cause of death should be certified by the medical practitioner, or in the absence of such certificate that the Coroners Acts should be complied with. The birth rate in Cork City during 1932 was 23.0 per 1,000 of the population (estimated at 78,490) and the death rate was 15.8. The corresponding figures in the preceding year were 24.4 and 16.2 respectively.

England and Wales

Recovery of Maintenance Costs from Council Hospital Patients

The London County Council intends to promote legislation next session in order to place on a uniform basis the recovery of costs of maintenance and treatment from patients in council hospitals and institutions. When municipal patients are maintained in hospitals which have been appropriated by the local authority to public health purposes the recovery of the expenses incurred, to the extent to which the patient is able to pay, is governed by Section 16 of the Local Government Act, 1929, whereby the expenses are "deemed to be a sum representing the average daily cost per patient of the maintenance of the institution and the staff thereof and the maintenance and treatment of the patients therein." In the case of Poor Law patients, however, recovery is governed by the Poor Law Act, 1930, in which there is no provision corresponding to Section 16 of the Local Government Act, but the Poor Law Act empowers a council to reimburse itself out of property of persons relieved for the whole or part of the amount expended in such relief and to obtain orders upon relatives of persons relieved for the purpose of recouping the Council the whole or part of the expenditure incurred. The maximum amount which can be recovered rests upon a certain legal judgement, and is limited to the expenses appertaining to the institution in which the patient is maintained. At present, so far as Poor Law patients are concerned, if a flat rate were charged the action of the Council might be challenged on the ground that the amount charged was in excess of the amount actually expended on the maintenance of the poor person in the particular institution of which he or she was an inmate. Any proposal to charge such a flat rate in the Council's hospitals and institutions, therefore, can only be carried into effect after legislation. The same considerations are held to apply to the maintenance of road accident patients. The London County Council accordingly proposes to ask for parliamentary powers to group together its establishments and treat them as one establishment for the purpose of recovering the cost of maintenance or of maintenance and treatment of patients in hospitals and institutions maintained by it under the Poor Law Act, or to which the requirements of the appropriate sections of the Local Government Act and the Road Traffic Act apply.

The Finance of "Pay Beds"

An analysis of the weekly fees charged to "paying" or "private" patients in voluntary provincial hospitals in Great Britain is furnished in a memorandum (No. 62), published by the Central Bureau of Hospital Information (12, Grosvenor Crescent, S.W.1). Particulars have been furnished by just upon 400 hospitals, with 2,135 "pay beds," representing 11 per cent. of their total accommodation. The most general fee for single rooms is between four and five guineas a week, and for beds in wards, between three and four guineas. In more than forty hospitals, however, the fee for single rooms exceeds seven guineas a week. On the other hand, there are about fifty hospitals where private beds in wards can be obtained at a fee not exceeding three guineas. At 120 of the hospitals no extra charges are made. The principal extra charges, when made, are for the use of the operating theatre, *x*-ray examination, and massage treatment. The fee for the use of the operating theatre ranges from five shillings to two guineas, but is most commonly one guinea, and for *x*-ray examination it is again commonly one guinea, though it may vary from half a crown to five guineas. The cost of massage treatment ranges up to half a guinea, though it is most commonly five shillings per treatment. Special nurses are charged for at thirteen hospitals at the rate of three guineas a week. In only four instances are the costs to the hospital of the "pay beds" given. In one hospital having twenty-two beds at fees of from five to seven guineas a week the cost in a year to the hospital was £2,829, and the income from fees £4,682, leaving a credit balance of £1,853. In the other three cases the income more nearly approached the expenditure, but in each there was a good credit balance. In the three hundred hospitals with 1,799 "pay beds" which furnish the particulars the number of paying patients admitted in the year was 20,900, and the fees paid by paying patients £188,000. The average number of patients per "pay bed" per year is from ten to fourteen, and the average fees received per "pay bed" per year appear to vary with the size of the hospital, being £120 in hospitals which have a total accommodation of from thirty beds upwards, and £72 in the smaller or cottage hospitals. It is suggested, though not supported, so far as we can see, by the figures given, that in general little or no profit is to be derived from "pay-bed" accommodation, but it would be interesting to know how far the experience of the four hospitals which give full particulars under this heading, and in each of which the accounts show a substantial credit balance, extends among the rest.

Medical Treatment of L.C.C. Staff

Certain district medical officers have hitherto been employed to afford medical attendance to such employees of the London County Council—namely, the members of the fire brigade and certain of the staff engaged on main drainage work—as are entitled to it, and to furnish any necessary certificates and returns; also to furnish certificates to certain other employees not entitled to medical attendance. The Council is now of opinion that the time has come when, as regards its staff other than those normally resident in institutions, hospitals, and schools, both medical treatment and the supply of certificates should be discontinued. It is proposed, however, to continue this facility to the existing personnel of the services who have been enjoying it until such time as they are

promoted or receive any financial advantage from a review of their present conditions of service. Under the new arrangements the staff will follow the normal practice of obtaining medical certificates from their own practitioners, and in cases of prolonged illness will be examined by a medical officer of the Council. The Council's contracts with the district medical officers employed on a part-time basis for attendance on and certification of the members of the fire brigade and certain of the main drainage services will be terminated, and the remaining work will be carried out by the medical officers under the direction of the Central Public Health Committee.

West End Hospital for Nervous Diseases

A complete child guidance unit was opened in this hospital in October, 1932 ; four sessions are held weekly for out-patients, and in-patients are treated according to their needs. In the first three months of its existence 55 new patients were dealt with, the number of their attendances being 215. According to the annual report new patients at the hospital totalled 4,144 during 1932, the number of attendances for psychotherapy being 1,810 and the number of in-patients admitted for treatment being 587. There were some 4,000 fewer out-patient attendances in the year for massage and electrical treatment. The decrease is in part attributable, states the report, to a diminution in the incidence of certain diseases, such as infantile paralysis. Other factors named also in this connexion are the provision of alternative local facilities and the inability of patients in these difficult times to spare either the money for fares or the time for regular attendance for treatment. In the speech department it proved possible to confirm the impression that disseminated sclerosis gives a characteristic speech tracing in nearly all cases, and one that is diagnostic. At present the possibility of distinguishing between cases of epilepsy and hysteria by means of speech tracing is being investigated.

Medical Society of London

The first half of the session 1933–4 of the Medical Society of London will open on Monday, October 9th, at 8 p.m. After the annual general meeting the president, Sir John Thomson-Walker, will deliver his address, entitled "Surgery in the Early Nineteenth Century." On Monday, October 23rd, at 8.30 p.m., a discussion on the value of preoperative investigations will be introduced by Dr. F. John Poynton and Mr. Norman C. Lake. On Monday, November 13th, at 8 p.m., there will be a clinical evening. A discussion on ward and dormitory infections (excluding the exanthemata) will be opened by Dr. J. Alison Glover, Dr. J. C. Spence, and Dr. E. K. Le Fleming on November 27th, at 8.30 p.m., and on Monday, December 11th, at 8.30 p.m., Mr. Claude Frankau, Dr. J. Hugh Thursfield, and Dr. Lionel E. H. Whitby will open a discussion on staphylococcal infections. The Lloyd Roberts Lecture, on "Association of Medical Men with Literature," will be given by Sir Humphry Rolleston on Thursday, November 16th, at 5 p.m. ; and the Lettsomian Lectures, on "Disturbances of the Body Temperature," by Dr. C. E. Lakin on February 19th and 28th and March 5th, 1934, at 9 p.m. The annual oration will be delivered on Monday, May 14th, by Sir Charles Scott Sherrington.

Course in Psychotherapy

A post-graduate course lasting one year, and covering psychotherapeutic theory and method, will commence at the Institute of Medical Psychology, Torrington Place, W.C.1, on October 2nd. It will be arranged in two groups: one for those who can only manage to devote three hours twice a week to the subject, and the other for those who, with a view to specialization, are prepared to give as a minimum twelve hours in the week, attending on three days. In the first group (fee for the year £35) there will be afternoon introductory lectures with discussions for five weeks, followed by supervised clinical work and lectures on special subjects. The second group (fee for a year £60, for six months £50) will follow the lines of the previous group, with the addition of an increased devoting of time to clinical treatment under supervision. Each group is limited to six members, and applications must be received by September 18th. The introductory course of lectures is available to medical practitioners (fee £2 2s.), and the systematic lectures, without discussion or other work, to medical graduates who have not entered for the full course, the fees being £5 5s. for the course, £2 2s. for ten lectures, or 5s. for single lectures. Details are obtainable from the honorary lecture secretary at the Institute.

CORRESPONDENCE

Treatment of Leg Fractures

SIR,—I trust that you will allow me to reply, as briefly as possible, to the letters which my recent article on leg fractures has called forth.

In the first place both Mr. Broomhead and Mr. Roberts (*Journal*, August 5th, pp. 263 and 264) have jumped to the hasty conclusion that the article was written without my having had any practical experience of skeletal traction methods. They are quite wrong, and they really should have given me the credit of trying a method out before condemning it. It was the realization that my end-results with skeletal traction were *no better* than those without that caused me to abandon the former method in dealing with these fractures. Mr. Broomhead states that I raise many controversial points. When such an enthusiastic exponent of skeletal traction admits that there are other methods of reducing fractures I feel that my effort has not been in vain. He refers to my difficulty in obtaining good apposition, but if he will refer again to the original article (*Journal*, July 22nd) he will find these words with regard to apposition: "In many cases it ensues automatically upon reduction, particularly if the case is dealt with early . . . " ; and again, "Sufficient apposition is usually obtained. . . ." It was not the difficulty, but the vital necessity, of obtaining apposition that was called in question.

Mr. Broomhead is surprised that I do not mention direct manipulation of the fragments in recent compound fractures. One cannot guarantee that these wounds are free from infection, even after the most careful excision, and it seems to me wiser therefore, unless the excision has to include removal of bone, to refrain from manipulating the fragments through the wound at all. In his criticism of the Winnett Orr method of treatment Mr. Broomhead was unfortunate ; the same issue of the *Journal*—August 5th, summary of proceedings of the Section of Orthopaedics (p. 251)—contains a description, by Dr. Winnett Orr himself, of how he adapted the principles of Hunter and Lister in perfecting his method. As far as the position of the knee is concerned, whether it be flexed or extended, the lower fragments will remain fixed when the plaster is properly applied, and not otherwise. Mr. Broomhead asks me to realize many things. In return I would ask him to realize one—namely, that he has missed the whole point of my argument. I am quite sure that his results are excellent, but I am prepared to maintain strongly that when there is a choice of methods, all of which can produce good results in careful hands, the one which entails least risk to the patient should be given prominence and not, as is the case at present, relegated to obscurity.

Mr. Roberts, unlike Mr. Broomhead, admits of no controversy and deals briefly with a matter that warrants more mature consideration. He states that sepsis, following the insertion of a pin, is almost unknown. I have seen three cases, involving the os calcis, within recent months. His advocacy of undercutting the margins of a plaster window on the dorsum of the ankle is a tacit admission of undue pressure in this region ; personally, I prefer patients to do without unnecessary pressure sores. He goes on to invoke the " accepted beliefs about the union of fractures "—without defining them, so that we are still in the dark as to who does accept them—in proof of the fact that end-to-end apposition hastens union.

Mr. Eastwood's letter (*Journal*, August 12th, p. 315) is very interesting in this respect, and I note that he confirms my own impressions in the matter ; it seems that he has also reached the same conclusions with regard to the treatment of these fractures in general. I have yet to be convinced of the paramount importance of complete anatomical reposition, and even more so of the steps which one is justified in taking to obtain it—a point which my critics ignored.—I am, etc.,

Liverpool, Aug. 19th. E. N. WARDLE.

Use of Quinine in Normal Labour

SIR,—The interesting letter of Dr. W. M. Hewetson in the *Journal* of August 19th (p. 358) leads me to put in a plea—based upon clinical experience—for the more general use of quinine prophylactically in obstetrics.

As a professor in charge for years of one of the largest women's hospitals in the Empire it has been my custom since 1922 to teach and prescribe quinine in 5-grain daily doses during the six or four weeks prior to the expected date of delivery, my clinical conviction being that such treatment not only lessened the incidence of fever but shortened the pangs of labour. Moreover, there is a curious syndrome for which such quinine in combination with glucose has almost a specific prophylactic action. I refer to that condition so frequently seen among rich or poor of a flabby abdominal wall associated with a flabby cardiac wall and a thin uterine wall—a syndrome which may, and often does, spell inertia, post-partum haemorrhage, or obstetric shock, with their attendant morbidity and fatality.

I have advocated and practised this use of quinine not because I was in the Tropics, for malaria is rarely seen in Calcutta, but because many years ago (before the war) I had observed that European women who resided in malarious districts and were accustomed to take 5 grains of quinine daily *throughout* their pregnancies, when they came down to Calcutta for their confinements, went through labour without anxiety to anyone, either during or afterwards.—I am, etc.,

London, W.1, Aug. 20th. V. B. GREEN-ARMYTAGE.

Psychology and the Curriculum

SIR,—The correspondence on psychology in the curriculum, opened by Dr. Godwin Baynes's call to arms against what he says is a determined attempt to graft the methods and teaching of Freud upon the tree of British medicine, continued by Dr. Francis Smith's appeal for the teaching of one particular set of doctrines, and by Professor Major Greenwood's advocacy of a philosophical approach, prompts me to offer a general survey of the position.

The end of the nineteenth century was the mid-point of the dark age of psychology in medicine. Occasional recognition of the tendency of the time took the form of a lament about the growth of specialism and the decay of the old family practitioner, with his knowledge of the patient's " constitution "—that is, of his psychological make-up. But meanwhile students were trained to regard a patient as a collection of microscopic changes or test-tube reactions, whilst anything that could not be seen, weighed, or measured was not science, and therefore was outside his concern. He sometimes met with " functional nervous disorders," in which he pictured some at present unknown interference with the smooth working of the mechanism, an interference that further advances in " science " would soon reveal. Even the accurate descriptions of these disorders that are to be found in earlier writings had been forgotten, though, unrecognized by " scientific " medicine, there had always been a few men who sought to understand them. Then the great war produced " shell shock," and, after a preliminary skirmish to refute mechanistic views, the psychological handling of that disorder was instituted. From this point a steady growth of interest took place, and, with little or no academic recognition, a number of medical men and women have devoted themselves to the study and handling of psychopathological disorders.

It is now recognized that these disorders cause serious disability. Next to coughs, colds, and influenza, the psychoneuroses—overt or disguised—cause the greatest loss of time in industry through sickness. Sufferers are no longer satisfied to be fobbed off with a placebo, and the few clinics offering psychological treatment cannot cope with their waiting lists. I am often approached by individuals, industrial organizations, and insurance companies—generally in the provinces—asking where treatment can be obtained ; I do not hesitate to tell them that the chief reason why treatment is not available is that the subject is not included in the medical curriculum. On the other hand, many practitioners now recognize their lack of training, and, wonderful to relate, there is frequently expressed a desire on the part of medical students that they should receive instruction.

Anyone familiar with the difficulties of the subject knows that complete instruction of the student is impossible. The situation can be compared with that of bacteriology. General principles, the recognition of dangers and possibilities, and the ability to carry out simple procedures, is all we can impose upon the student. In psychopathology general principles are all-important, and, although my medical training left me ignorant of what academic people call " philosophy (moral)," yet practical experience has forced me into the position indicated by Professor Greenwood. In a course of ten lectures to students I now devote at least one to the history of psychology in relation to medicine, and I regard that as the most important of the ten. Without a knowledge of the past one cannot understand the present—cannot understand one's own or the still persisting nineteenth century mental attitude.

The introduction of psychology and psychopathology into the curriculum seems inevitable. Whether suitable teachers and clinicians will be immediately found is doubtful, for official discouragement in the immediate past has its effects. Once, however, the position is regularized we shall do well to avoid stereotyping the curriculum, and we must give teachers the freedom that scientific workers expect in any department. To Dr. Smith I would say I sincerely wish that psychopathology were as simple as Alfred Adler makes it appear. To Dr. Baynes I would say that, rightly or wrongly, I find it necessary to make free use of psycho-analytical conceptions in discussing my own work and observations, and if any attempt were made to hinder me because they *are* psycho-analytical I should regard the attempt as a heresy hunt, and contrary to the scientific spirit.—I am, etc.,

London, W.1, Aug. 21st. MILLAIS CULPIN.

Sir,—Professor Major Greenwood's letter, in the *Journal* of August 19th (p. 357), gathers its impetus from the belief that there exists a body of competent persons with sufficient knowledge of the mind to present to "raw youths" an intelligible account of the mind and its functions.

Unfortunately no such body exists. Psychological theories are almost as numerous as psychological practitioners. This fact is not in itself deplorable, because it is eloquent of the intensity of interest which psychological problems evoke. But it does surely mean that the time is not yet ripe for any authoritative verdict on the fundamental principles upon which the science of psychology shall be grounded. Experimental psychology enters the field from the direction of physiology, and has made substantial gains in the study of the special senses. Many schools, including Freudian psycho-analysis, have attacked the problem of the biological causation of certain psychic mechanisms. These researches into the nature of the instinctive mechanisms of the unconscious have been undeniably fruitful in giving us a new kind of insight into the history of human behaviour. But no one but a scientific scholastic could suppose that a whole view of the mind can be won by borrowing basic conceptions from other specialized fields of natural science, in which the main problem of psychology—namely, the moral problem—does not appear.

Psychology, to become a true science, will eventually take the field of the psyche—that is, the whole range of psychic products and phenomena—as an independent field of study, and will form its concepts empirically from actual psychic material instead of, as at present, elucidating this material in terms of biological or physiological preconceptions. The attempt to teach psychology to medical students while it is still in an embryonic transitional phase seems to me a mistake, first, because the inculcation of a number of mutually incompatible theories into the callow mind of youth must produce a sense of impotent confusion, and, secondly, because only those who have a real vocation for psychology will be able to persevere through the endless windings of the psycho-analytic labyrinth into the decent light of day. Those who have this vocation will find their way from their own inner necessity, and they will absorb their psychological knowledge far more readily and permanently in the practical clinical field than in lecture rooms, where rival theorists voice their partial views. The optional seminar method is, to my mind, the most suitable for practical psychological demonstrations.

Professor Greenwood's assumption as to the motives of my letter may have been due to the difficulty I had in expressing within the compass of a letter a conviction based on many years' experience, but I can assure him that my grounds for questioning the wisdom of this new extension of the curriculum come from a deep desire that psychology in this country should be allowed to grow in its own right. If we hurriedly and unwittingly accept a kind of biological changeling in its place irreparable damage to our science may be done.—I am, etc.,

London, N.W., Aug. 21st. H. Godwin Baynes.

Treatment of Rodent Ulcer

Sir,—I agree with Drs. Donovan and Ash (*Journal*, August 12th, p. 314) that Dr. Finzi has been not quite just to the surgical treatment of rodent ulcer. During the past forty years I have excised a large number of rodent ulcers of the face and have never had a recurrence; no doubt I have been fortunate in the fact that all these cases were comparatively early. The cosmetic results have surprised me. I also think Dr. Finzi wrong in describing the action of CO_2 snow as caustic. It causes a severe local inflammation, but should not destroy healthy tissue. Two applications are generally necessary. I have had one recurrence after CO_2 snow, which responded readily to further similar treatment, and the patient has been well for years. I agree that radium treatment, as carried out by Dr. Finzi, is the ideal method, but it is not always and everywhere easily available. And in certain cases it is the only treatment advisable.—I am, etc.,

Bolton, Aug. 21st. R. D. Mothersole.

Arthritis and Allied Conditions

Sir,—Warm thanks are due to the British Medical Association Committee for its work and report on arthritis and allied conditions in your issue of June 17th. Of the manifold points of profound interest perhaps one of the most outstanding is the aetiological importance accorded to focal sepsis, particularly in secondary rheumatoid arthritis, which, we are told, is "usually associated with discoverable septic foci," and it is stated that many patients, especially if treated in the early stages, recover after dealing with the affected part. Further, we are told that the teeth, tonsils, nasal sinuses, pharynx, intestines, and genito-urinary tract demand careful attention; but in stating that "of the nasal sinuses the maxillary antra is the commonest site of infection," and explaining how they should be tested, the committee seems to convey the false impression that the other sinuses that it altogether omits to specify are of less importance. This is unfortunate, for, on the contrary, the source of infection may be confined to the sphenoidal and ethmoidal sinuses, even where the antra are proved sterile.

Perhaps one reason why the maxillary antra are the most frequently discovered nasal source of focal sepsis is that the sphenoids and ethmoids are usually ignored—as was done by several eminent colleagues in my own case—and also missed in radiograms. As one who has suffered, I know to my cost that the only certain test is the bacteriological examination of the uncontaminated samples obtained by sucking out the contents of the suspected sinuses. I recall the article in the *Journal* of June 21st, 1922 (p. 88), by Dr. P. Watson-Williams of Bristol, on rheumatoid arthritis due to infection of the nasal sinuses. Now in each of the cases of antral sinusitis that he cites there was *also either ethmoidal cell or sphenoidal sinus infection*. Probably the most striking of his examples was that of a case of polyarticular rheumatoid arthritis of many years' duration, progressing despite courses of treatment at Bath, which was ultimately completely arrested by drainage of the infected sphenoidal sinuses, the maxillary antra and all other sinuses being sterile. This infection was diagnosed by means of his suction-exploration method, and was proved to be due to a mixed streptococcus and a *Staphylococcus aureus*. Although, as your footnote informs us, this very early contribution on sinusitis as a cause of rheumatism was the presidential address to the Bath and Bristol Branch of the British Medical Association, it appears to have escaped notice, being omitted from the list of memoranda before the committee.

May I add that my own case would have been far different had the sphenoidal and ethmoidal cells been examined by the method first demonstrated by Dr. P. Watson-Williams many years ago, and I am writing this letter partly owing to my profound personal interest in his method, but chiefly because it is of the utmost importance for successful treatment that the source of nasal sinus infection other than the maxillary antra should be stressed.—I am, etc.,

Ampleforth, Yorkshire, Aug. 5th. Alan C. Vidal.

Hernia and Appendicectomy

SIR,—A belated contribution to this correspondence might be considered excusable, since at a distance I am able to advance, perhaps, an acceptable explanation of the incidence of inguinal hernia consecutive on the muscle-splitting incision at McBurney's point in appendicectomy.

When, in 1908, I was house-surgeon to Chelsea Hospital for Women, I was favoured, when assisting Sir John Bland-Sutton at operations, in being the recipient of many of his original observations as points arose for consideration as his work proceeded. I took it as a truism, not as a speculation, when he drew my attention to the potential causation of right inguinal herniation when abdominal content, such as a loop of bowel, became anchored by adhesion behind a McBurney abdominal scar, so proximate to the internal ring.

It would appear that it is only by the slithering mobility of the abdominal contents that inguinal herniation does not more frequently occur, and that with two predisposing causes ever present—a congenitally weak place in the abdominal parietes and the intra-abdominal pressure—it requires but the additional factor of gut held in position behind the internal ring by an anchoring adhesion above for the consummation of protusion to occur.

I have acted on this comprehension ever since. In the male, in simple appendicectomies, the muscle-splitting incision is invariably my route of choice, and I have always been particularly careful when suturing the peritoneum to ensure that no anchorage of abdominal content occurs. In a large series of cases I have never had a hernia sequela, but I have come across and operated upon three, in each of which bowel anchorage behind the McBurney scar existed. Inevitably, drainage cases result in adhesive peritonitis, but I expect it will be found—if curiosity is satisfied in the experience of others—that it is not in these types of cases that post-appendicectomy inguinal hernia characteristically occurs.—I am, etc.,

Taumarunui, New Zealand, July 24th. WELBY FISHER.

Appendicectomy

SIR,—Mr. A. R. C. Higham, in the *Journal* of July 8th (p. 56), in a memorandum on a small improvement in appendicectomy, says nothing about burying the stump. I presume that he either does not, or does so with the ligature round the vessels of the mesoappendix, using it as a purse-string suture. More convenient than an aneurysm needle is a Cleek Childe's ligature forceps, as this saves time threading.—I am, etc.,

C. A. VAN ROOYEN, M.R.C.S., L.R.C.P.

Haputale, Ceylon, July 31st.

Intestino-vesical Fistula

SIR,—I was very interested in Mr. Willan's article (*Journal*, July 22nd, p. 140), on intestino-vesical fistula. I have met one such case, and in view of the rarity of the condition it might be worth while giving a few details of it.

The patient was—and still is—an inspector of police, and for three years he had suffered from periodic attacks of severe pain in the lumbar region; these attacks were relieved by the passage per urethram of air and what the patient suspected were faeces. On cystoscopic examination the fistulous opening was seen, and on radiological examination of the colon numerous diverticula. The barium was observed, during the latter investigation, passing through the fistula from the colon into the bladder. Later a colostomy was performed. The patient made a speedy recovery and was clear of symptoms. He was, however, dismissed from the police force, being considered, because of his colostomy, unfit for further service, but on appeal he was reinstated. At present he enjoys good health, and is carrying out without any difficulty the duties of his position. The colostomy is under perfect control. Although a short time after the operation he was anxious to know if the colostomy could be undone with safety, now he has no thoughts in that direction, because he feels very fit and, as he himself says, it (the colostomy) has become so attached to him that he would miss it very much were it to desert him!

—I am, etc.,

Glasgow, Aug. 16th. P. J. MOLLOY.

Respiratory Disease in Miners

SIR,—Could the British Medical Association inaugurate an investigation to show how far respiratory diseases may be controlled among miners and other workmen who are exposed to infected atmosphere by the use of a non-toxic but effective nasal spray? Much time and money has been spent on their possible control by catarrhal vaccines, and many devices are favoured among miners, such as tobacco, native snuff, and antiseptic nasal ointment. The value of mercury in both aural and nasal catarrh cannot be ignored, but the hypothesis that "to keep the nasal cavity relatively free from micro-organisms by the occasional use of a potent lotion as a spray would not only prevent the onset of many a common cold but assist in the cure of chronic respiratory infection" is a reasonable one, and deserves a more thorough trial than has yet been given to it.

I cannot approve of an indiscriminate use of nasal lotions which tend to remove the mucus that renders the nose our first line of defence against atmospheric pollution, and an inquiry might show what preparation may best be employed to prevent early infection of the nasal passages by keeping them both clear and clean.—I am, etc.,

Durban, Natal, July 19th. F. G. CAWSTON, M.D.

High Eosinophilia

SIR,—Dr. Murphy (*Journal*, August 5th, p. 233) records a case of unusually high eosinophilia of obscure origin. The primary symptoms were an increasing languor and fatigue on slight exertion, and a feeling of nausea. On examination the patient was found to be suffering from anaemia, dyspepsia, wasting, and irregular fever. There were no localizing signs, but the foregoing surely point to a toxaemia. The presence of eosinophilia narrows down the possibilities, for eosinophilia is peculiar to the allergic state. O. C. Gruner, in *The Biology of Blood Cells*, says that eosinophilia means the presence of a definite protein substance the nature of which requires elucidation. Bezançon and Bernard[1] state that eosinophilia is a response to protein—either autogenous or foreign—and is a sign of toxaemia. The former authority refers, among other diseases, to (1) the latent type of Hodgkin's disease, where the internal glands and the liver are enlarged, and (2) subacute or chronic tuberculous lesions. These two diseases must be considered. Sahli[2] states that eosinophilia is present in the mycoses. The mycoses are far more common than is generally supposed. With this in view, we suggest that the stools and urine and any sputum be examined culturally for the presence of monilia or other fungus, and that the patient be dosed with an alkaline pot. iod. mixture (pot. iod. half a drachm thrice daily) over a long period, particular attention being paid to the weight and temperature. The clinical picture is that of a generalized monilia infection.—We are, etc.,

P. JANVRIN MARETT, M.R.C.S., L.R.C.P.
H. GORDON OLIVER, M.B., B.Ch.

Jersey, Aug. 12th.

[1] Bezançon and Bernard: *Ann. de Med.*, 1930, xxvii, 204.
[2] Sahli: *Diagnostic Methods*, Potter, 1918, p. 808.

I.M.S. Pensions

Sir,—In continuation of my letter in the *Journal* of July 22nd (p. 172) I venture to suggest that many Indian Medical Service officers, as well as most officers in the Indian Services, will be interested to read Sir Michael O'Dwyer's pamphlet entitled *Pensions, Pledges, Guarantees —A Word to all Interested in Indian Pensions.* Copies of the pamphlet may be obtained, post free, by writing to the Chief Organizer, India Defence League, 48, Broadway, Westminster, London, S.W.1.—I am, etc.,

C. C. Murison,
Knocke-Zoute, Belgium, Aug. 17th. Colonel I.M.S.(ret.).

Section of Surgery: Corrigendum

Sir,—In the summary of the proceedings of the combined meeting of the Sections of Surgery and Radiology at Dublin, in your issue of August 19th (p. 345), there is an unfortunate error in the paragraph summarizing my remarks. The sentence—" Of 11,000 cases of cancer . . . only 455 were suitable for radical surgery "—should read, " Of 1,100 . . ." As this latter figure shows, the proportion of inoperable cases of malignant disease seeking treatment at Middlesex Hospital is high enough, but fortunately not so large as the number printed would suggest.—I am, etc.,

London, W.1, Aug. 18th. Eric Pearce Gould.

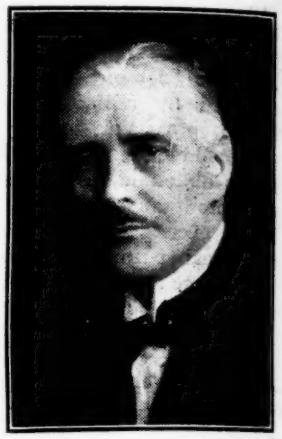
Obituary

ARTHUR W. J. MacFADDEN, C.B., M.B., C.M., D.P.H.

Late Chief Inspector of Foods, Local Government Board, and Senior Medical Officer, Ministry of Health

We regret to announce that Dr. Arthur William James MacFadden died suddenly at his home at 20, Lymington Road, West Hampstead, on August 16th, at the age of 64. The son of Dr. James MacFadden of Portadown, he was educated at Lurgan College and at Edinburgh, where he qualified in 1893. He was in general practice in Leeds and Belfast until 1899, when he joined the South African Field Force as a civil surgeon and served until 1901, receiving the Queen's medal with four clasps. The lessons of preventive medicine which he then learned, together with his previous experience of enteric fever at Belfast, decided him on his return to take the D.P.H. and make public health his career ; he studied accordingly at University College, and obtained appointments as assistant medical officer of health at Croydon and with Sir Arthur (then Dr.) Newsholme at Brighton, under whom he was to serve again later at the Local Government Board. In 1903 he became medical officer of health of the Edmonton urban district, a part-time post in which he quickly made his influence felt, particularly in connexion with local questions of hospital isolation and sewage disposal. He became a whole-time officer, and his administrative capacity and attractive personality were soon known and appreciated at the central health department.

Mr. John Burns, then President of the Local Government Board, had decided, after the final report of the Royal Commission on Arsenical Poisoning, 1903, to establish a special section of the medical department of that office to deal with the purity and wholesomeness of food, and Dr. MacFadden was, on the recommendation of Sir W. H. Power, appointed a member of this new staff in 1906. The " Inspectors of Foods," as they were then termed, who worked at an office at 50, Parliament Street, under the Principal Inspector, Dr. (now Sir George) Buchanan, began the work by giving special attention to securing definitions and standards for the purposes of the Sale of Foods and Drugs Acts, with the co-operation of public analysts and after full inquiries into trade practices. Dr. MacFadden's work at this time covered the use and quality of cream of tartar, baking powders, and other food ingredients, the definition of " vinegar," and many like matters, which were made the subject of special monographs published by the Board or dealt with in the annual reports of the work of the sub-department. Another line of work was soon added in consequence of what were termed the Chicago meat scandals, and the legislation of 1907 gave the Local Government Board wide powers to make regulations to prevent danger to the public health from the importation, preparation, storage, and distribution of foodstuffs generally. Dr. MacFadden took an important share in the different inquiries which followed—for example, the importation of butchers' "offal," boneless meat, tripe, canned meat, the reliability of slaughterhouse inspection abroad, and the use of formalin and other preservatives. From these inquiries he came to possess an exceptional knowledge of trade processes in relation to food preparation, and acquired an authority and reputation for fairness and good judgement in dealing with trade questions affecting the public health which were not only of much service at the time to his department, but invaluable later when he was concerned with the quality of food supplied to the Army during the war.



After he had succeeded Buchanan as Principal Inspector of Foods in 1911, MacFadden continued work on these lines, and added to it reports on cases of food poisoning and on local methods of food inspection, as well as numerous studies and observations on the control of milk supplies. He took part in the technical inquiries which led to Sir Herbert Samuel's Milk and Dairies Act, 1914, and was largely responsible for the regulations and central administration relating to milk—including the system of designation and grading of milk—under this and subsequent Acts.

On the outbreak of war in 1914 the Local Government Board offered the assistance of the sub-department to the War Office. The acceptance of this offer involved MacFadden in the organization of measures of wide ramification. His assistance was sought on many questions affecting specifications, while a new and detailed system of supervision of the food supplied to the Army, both at home and abroad, was inaugurated. For this purpose the War Office furnished him with a list of all Army contractors, and information was supplied by commanding officers at home of the sources of food supplied to their units. Such information was passed on to local medical officers of health, who were thus enabled to exercise special supervision over the premises concerned. This was accompanied by frequent and continued inspection by the members of MacFadden's own staff, an inspection which extended from large contractors for wholesale supplies to small producers with insignificant premises. A systematic and often meticulous supervision thus became established, both for the quality of food materials and for the conditions of their preparation. As a measure for safeguarding the health of the troops it was invaluable ; this was proved by the

absence during the war of the food poisoning historically associated with Army contracts. A further important activity was concerned with the supervision of meat contracts in North America, South America, and Australia, for which purpose MacFadden detailed two members of his staff. In addition to the control of this wide organization MacFadden served on the Food (War) Committee of the Royal Society appointed to advise the Food Controller on scientific questions relating to nutrition and other kindred matters; the committee appointed by the Food Controller and the President of the Board of Agriculture and Fisheries to advise on questions connected with the production and distribution of milk; and the Milk Control Board, appointed by the Food Controller to control and regulate the distribution of milk. In the discharge of this wide range of duties MacFadden exercised unfailing supervision, energy, and tact, and the decoration of C.B. which was bestowed on him on the termination of the war was a well-merited honour.

Dr. MacFadden's last report to the Local Government Board on the work of the sub-department for food inspection appeared in the annual report of that Department for 1918–19. On the creation of the Ministry of Health that sub-department ceased to exist as such. In the new Ministry Dr. MacFadden was appointed one of the senior medical officers and placed in charge of a section of the medical department, under Sir George Newman's direction. In this section he advised on various questions relating to nutrition, dietaries, and the like, and continued technical work in relation to many of the subjects mentioned above. This was particularly the case in regard to the use of preservatives and colouring matters in food, following the report of the committee on this subject which was set up in 1923, and its outcome, the Public Health (Preservatives, etc., in Food) Regulations, 1925. He did important service on many other committees of inquiry during this period. The Departmental Committee on Meat Inspection, 1920, and the Accessory Food Factory Committee of the Medical Research Council require special mention in this respect, while he was chairman of the Canned Food Committee of the Department of Scientific and Industrial Research, and took part in the investigations of that department into refrigeration and like matters.

MacFadden retired from the public service in 1929. He had married, in 1905, Alice Bristow, daughter of the late Ven. John Spence, D.D., Archdeacon of Connor, and had four sons and two daughters. A funeral service on August 19th at St. Paul's, Avenue Road, Hampstead, was attended by several of his former chiefs and colleagues, by all of whom, as well as by a much wider circle of those with whom his official work brought him into contact, the memory will abide of a strenuous and conscientious worker, a man of the highest character, and a personality of exceptional charm.

We regret to announce the death, on July 28th, of Dr. A. Z. C. CRESSY of Wallington, Surrey. Arthur Zell Clardon Cressy was born in 1861. Educated at Epsom, he commenced his medical studies at Guy's Hospital, where he qualified M.R.C.S.Eng. and L.S.A. in 1887. A correspondent writes: Dr. Cressy's death does more than terminate a period of forty-five years' active medical practice; it brings to an end a famous family tradition, for there were Cressys practising in the Wallington district at the time of the French Revolution. From the time he left school Dr. Cressy had constantly accompanied his father as an unqualified assistant. He was always quick to seize on any new instrument or line of treatment, and was at various times responsible for the design of several surgical instruments. It was, however, in the field of obstetrics that Dr. Cressy's chief skill lay. An intense individualist, he resented authority in any form, and was ever an aggressive champion of what he considered were the rights of the general practitioner. A very old member of the B.M.A., his criticism of its treatment of the general practitioner was at times apt to be violent. Dr. Cressy was one of the founders of the Carshalton Cottage Hospital, and was senior surgeon from its opening in 1899 until the date of his death. It was also largely due to his energy that the District War Memorial Hospital was erected in 1924. His chief hobbies were horticulture and photography. He was, however, never happy away from his work, and found holidays merely a source of irritation. He was an unforgettable figure in his grey whipcord coat and white hunting-stock, with his ruddy complexion and gold-rimmed monocle. Many of us disagreed with his views, but we miss him sorely.

The following well-known foreign medical men have recently died: Professor LINDEMANN of Warsaw, an authority on war gas; Professor ALEXANDER FERENCZI, a Hungarian psychologist and former collaborator of Professor Freud; Dr. RALPH LEAVITT MACFARLAND, a New York radiologist, aged 69; Dr. H. A. COTTON of New York, a specialist in dementia praecox and melancholia; Dr. EDWARD OSGOOD OTIS, emeritus professor of pulmonary diseases and climatology, Tufts College Medical School, Boston, and author of works on tuberculosis, aged 84; Dr. GÉRARD MOZER, of the Hôpital Maritime of Berck-sur-Mer, aged 41; Dr. ERICH LESCHKE, extraordinary professor of medicine at Berlin University, author of a work on metabolic diseases, aged 46; Dr. FRANZ SCHÖNENBERGER, extraordinary professor of general therapeutics and director of the Hydrotherapeutic Institute at Berlin University, aged 68; and Dr. PAUL SOLLIER, director and president of the Institut des Hautes Études of Belgium, professor and founder of the School of Ergology at Brussels, and Commander of the Legion of Honour.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on August 5th the following medical degrees were conferred:

M.D.—*W. N. Leak, *R. C. Priest, R. J. V. Pulvertaft, J. L. Franklin, R. W. Knowlton.

M.B., B.CHIR.—*J. S. M. Pringle, J. W. Campbell, B. P. Harris, L. W. A. Lankester, F. G. Maitland, C. P. Bailey, R. A. Sykes, G. R. Ellis.

M.B.—M. L. Rosenheim, A. N. McCrea, J. W. Bromley.

B.CHIR.—*J. G. M. Nisbett, *D. Kyle, *E. W. Price, *J. G. Jones, *G. L. Foss, *R. H. Dobbs, R. Cairns, O. A. Trowell, J. N. Groves, A. H. Charles, J. G. V. Smith, C. G. Batty-Smith, C. M. Carr, J. W. Maycock, E. W. Taylor.

* By proxy.

The Services

DEATHS IN THE SERVICES

Colonel Frederick Smith, C.B., C.M.G., D.S.O., late R.A.M.C., died in a nursing home in London on July 26th, aged 75. He was born at Horncastle, Lincoln, on February 14th, 1858, was educated in the school of the Irish College of Surgeons and the Carmichael School, Dublin, and took the L.R.C.S.I. and L.R.C.P.I. in 1889, and subsequently the D.P.H. at Durham in 1897. Entering the R.A.M.C. as surgeon on March 30th, 1890, he became lieutenant-colonel on August 14th, 1912, and brevet colonel on September 4th, 1912. His services were retained on the active list, owing to the war, after he had attained the age limit; he retired on December 26th, 1917. He served in the Zulu war of 1879 (medal and clasp); in the first Boer war in 1881; in operations in Sierra Leone in 1898–9, in the Mendiland expedition (medal and clasp); in South Africa in 1900–1, in operations in the Transvaal, Orange River Colony, and Cape Colony, including the actions at Biddulphsberg, Bethlehem, and Wittebergen, was mentioned in dispatches in the *London Gazette* of September 10th, 1901, and got the Queen's medal with four clasps, and the D.S.O.; on the North-West Frontier of India in the Mohmand campaign of 1908 (medal with clasp); and in the war of 1914–18, when he was mentioned in dispatches

in the *London Gazette* of October 19th, 1914, January 1st, 1916, December 6th, 1916, and November 28th, 1917, and received the C.M.G. in 1917 and the C.B. in 1918. The Royal Warrant of November 27th, 1879, laid down that half of the vacancies in the R.A.M.C. might be filled by candidates recommended by the governing bodies of the medical schools in Great Britain. Colonel Smith was, we believe, the only officer ever appointed under these conditions. He was also the only officer in the R.A.M.C. who had served in the ranks. He enlisted in the Medical Corps while a medical student, and served in the ranks for twelve and a half years. While stationed in Dublin he attended the classes he still required to complete his medical curriculum, and got the licences of the Irish Colleges in 1889. These Colleges then recommended him for a commission in the Army Medical Department, now the R.A.M.C., and he was appointed surgeon on probation. At the Army Medical School at Netley he took the Herbert prize for the best man of his year, and the second Montefiore prize in surgery ; subsequently he gained the Parkes memorial medal and prize twice, in 1897 and in 1907 ; the Alexander memorial gold medal twice, in 1903 and 1906 ; and the Enno-Sandes gold medal of the United States in 1903. Much of his service was spent on sanitary work ; he was assistant in the bacteriological laboratory at Netley in 1896–8, sanitary officer of the forces in West Africa in 1903–4, and divisional sanitary officer at Rawal Pindi. He was the author of *Modern Bullet Wounds and Modern Treatment* (1903), and contributed many scientific and professional papers to the *Journal of the Royal Army Medical Corps*.

Lieut.-Colonel George Waters, Bombay Medical Service (ret.), died at Beddington Lane, near Croydon, on July 25th, aged 87. He was born on April 23rd, 1846, the son of John Waters of Bomer, Caithness, and was educated at Thurso Academy and at Anderson's College, Glasgow. After taking the L.R.C.P. and S.Ed. in 1869 he entered the I.M.S. in the same year, and attained the rank of brigade surgeon lieutenant-colonel on March 31st, 1896, and retired on April 23rd, 1901. His first appointment was as assistant to J. H. Sylvester, the superintendent of the Bombay Ophthalmic Hospital. He was soon after appointed Residency surgeon at Bushire, in the Persian Gulf. In 1874 he took three months' leave, and rode from Bushire to Resht, on the Caspian Sea, publishing an account of the ride in *A Journey from Bushire to Kazeroon and Back, 1874*. Soon after, Sir Richard Temple, who was then Governor of Bombay, appointed Waters his personal surgeon, a post which he continued to hold under the next Governor, Sir James Ferguson. In 1881 he was appointed physician to the Jamsetjee Jeejeebhoy Hospital, Bombay, and professor of pathology in the Grant Medical College. In 1889 he was appointed Presidency surgeon of the third district, Bombay. After retirement he made a trip round the world, and also visited Kashmir, and wrote an account of his journeying, called *Travel Reminiscences*. He married Winifred, second daughter of General Hatch, R.A. She died at Bombay in 1887, leaving a daughter.

Lieut.-Colonel John Archbold Turnbull, D.S.O., R.A.M.C., died suddenly at Ranikhet on July 27th, aged 53. He was born on October 9th, 1879, was educated in the Edinburgh extramural school, and took the Scottish triple qualification in 1903. Entering the R.A.M.C. as lieutenant on January 30th, 1904, he attained the rank of lieutenant-colonel on October 4th, 1925. He served on the North-West Frontier of India, in the Zakka Khel and Mohmand campaigns of 1908, gaining the Frontier medal with a clasp. In the war of 1914–18 he was mentioned in dispatches in the *London Gazette* of January 1st, 1916, and May 20th, 1917, and received the D.S.O.

Major Herbert Fletcher Joynt, R.A.M.C. (ret.), died at Mandeville, Jamaica, on April 9th, aged 49. He was born on February 5th, 1884, and was educated at Guy's and at Durham University, where he graduated M.B., B.S. in 1907. After filling the post of obstetric resident at Guy's, he entered the R.A.M.C. as lieutenant on January 30th, 1909, became major after twelve years' service, and retired on November 2nd, 1929. He served in the war of 1914–18.

Major David Stiell, R.A.M.C. (ret.), died at Bournemouth on May 25th, aged 68. He was born at Lesmahagow on April 20th, 1865, and was educated at Glasgow, where he graduated M.B., C.M. in 1868, and M.D. in 1896. Entering the Army as surgeon on February 5th, 1887, he became major after twelve years' service, and retired on May 25th, 1907. He served in the South African war in 1900–2, taking part in operations in the Transvaal and Orange Free State, including the action at Zillkat's Nek, and received the Queen's medal with three clasps and the King's medal with two clasps. When the war of 1914–18 began he rejoined from the Reserve of Officers, and served throughout the war.

Medical News

The annual dinner of past and present students of St. Mary's Hospital will be held on Saturday, September 30th, at 7.30 p.m., at the Trocadero Restaurant. Dr. Reginald Miller will be in the chair. The honorary secretary is Dr. A. Hope Gosse.

The Fellowship of Medicine and Post-Graduate Medical Association has arranged for the following courses to take place during September: on diseases of infants, at the Infants Hospital, Vincent Square, September 4th to 16th, to take place every afternoon ; on psychological medicine, at the Bethlem Royal Hospital, Beckenham, September 5th to 29th, on Tuesdays and Fridays at 11 a.m. ; on medicine, surgery, and the specialties, at the Westminster Hospital, S.W.1, from September 18th to 30th, to occupy the whole of every day ; on diseases of the chest, at the Hospital for Consumption, Brompton, from September 25th to 30th ; on proctology, at the Gordon Hospital, Vauxhall Bridge Road, in the afternoons, from September 25th to 30th ; on rheumatism, at the Royal Mineral Water Hospital, Bath, during the whole of Saturday, September 30th, and Sunday, October 1st. In addition to the above a special tutorial course (for men graduates only) in medicine, surgery, and midwifery has been arranged to take place from September 29th to October 3rd, inclusive, at the Connaught Hall of Residence, 16, Torrington Square, W.C.1. Intensive lectures and demonstrations will be given the whole of each day, and will deal with the clinical conditions in which recent developments have occurred. Post-graduates attending this course will reside at the Connaught Hall. Full details are now ready, and can be obtained from the secretary of the Fellowship of Medicine, 1, Wimpole Street, London, W.1.

The eighth congress of French-speaking gynaecologists and obstetricians will be held in Paris from September 28th to 30th, under the presidency of Dr. Couvelaire, when the following subjects will be discussed: (1) Surgical treatment of placenta praevia, introduced by Professors Paucot of Lille and Reeb of Strasbourg. (2) Tuberculosis of the uterus and adnexa, introduced by Drs. Brocq, Moulonquet, Claude, and Béclère of Paris and Professor Rochat of Lausanne. (3) Treatment of the sequels of the artificial menopause, introduced by Von Cauwenberghe of Ghent and Professors Brouha of Brussels and Masserbeau of Montpellier.

The French congress for doctors fond of French wines will be held at Bordeaux from September 7th to 9th, under the presidency of Professor Portmann, when visits will be paid to various wine depots, and addresses will be given on wine in medicine and its role in hygiene and diet.

The twenty-eighth congress of the German Orthopaedic Society will be held at Leipzig, under the presidency of Professor Schede, from September 11th to 13th, when the chief subject for discussion will be orthopaedics and rheumatism, and conservative treatment of foot-drop.

The International Association of Preventive Paediatrics will hold its third conference at Luxembourg on September 27th and 28th. The subjects for discussion are the prophylaxis of poliomyelitis, introduced by Professor Rohmer of Strasbourg and Dr. Wallgren of Göteborg (Sweden), and the acute specific infections of infancy, introduced by Professor Rott of Berlin and Dr. Frontali of Padua. Inquiries should be addressed to the secretary of the conference, Dr. D. Oltramare, 15, Rue Lévrier, Geneva.

The first congress of photography and cinematography in relation to the sciences of medicine and biology will be held in the State Museum of Pedagogy, Paris, from October 5th to 7th. There will be demonstrations of films and slides, and discussions. Information about the scientific side of this congress can be obtained from Dr. C. Claoue, 39, Rue Scheffer, Paris.

A Congress of Slav Medicine will be held at Poznan on September 15th, when the subjects for discussion will be goitre and blood groups in forensic medicine.

It is stated in the annual report of the Queen Alexandra Sanatorium Fund that during the twelve months preceding April 30th, 1933, more grants than in the previous year were made to enable persons of slender financial resources to obtain treatment in Switzerland. There were at Davos last winter forty patients, as compared with twenty-seven in 1931–2, but many stayed for much shorter periods, and a number of grants were made quite late in the season. Only four patients were in receipt of grants for the whole season of 197 days, from October 16th, 1932, to April 30th, 1933. In twelve cases the grant was extended until May 31st. It is announced in the current annual report of the fund that medical statistics seem to show that the clinical results were more successful than in any preceding year. This is attributed to the development, improved technique, and more extensive application of some form of collapse therapy, and particularly of artificial pneumothorax. The safe division of adhesions has greatly increased the sphere of usefulness of this procedure, and quite large adhesions are now dealt with without risk. Forms of application for grants for the coming winter are obtainable from the honorary secretary of the fund, Mr. A. Stanley Herbert, 25, Birchin Lane, London, E.C.3.

According to the annual report of the Benenden (Kent) Sanatorium, the number of beds available for use was increased to 148 during 1932. The average number of cases treated on each day rose from 139.45 to 140.36. Towards the end of the year it appeared that fewer county council cases were being admitted. The induction of artificial pneumothorax and gold therapy gave good results, and at the end of the year there were in residence thirty-two patients on whom pneumothorax had been performed and fourteen having crisalbine treatment. The arrangement and conducting of graded work in the sanatorium grounds has been reorganized. In the twelve months under review 238 patients were admitted and 256 were discharged; of these latter 199 were "much improved" and twenty-four "improved."

The issue of the *Gazette des Hôpitaux* for August 5th contains an account of the proceedings of the Seventh International Congress of Military Medicine and Pharmacy recently held at Madrid. The next congress will be held in Rumania.

The issue of the *Deutsche Medizinische Wochenschrift* for August 11th, 1933, is devoted to "The Doctor and Sport."

The issue of the *New English Journal of Medicine* for July 13th was a *Festschrift* in honour of Dr. Robert B. Osgood, who retired in 1931 from the chair of orthopaedic surgery at Harvard Medical School. It contains a foreword by the late Sir Robert Jones.

The late Mr. J. Priestley Smith, professor of ophthalmology in the University of Birmingham, 1897–1912, left £22,695.

A large new building to form the future home of the Prince Leopold National Institute of Tropical Medicine is approaching completion in Antwerp.

The Rev. L. C. Rowan-Robinson, M.B., Ch.B., has been appointed Vicar of Brinsley and Woodborough, Nottingham.

Dr. Wilhelm Karl, head of the clinic for skin and venereal diseases at Vienna, has been elected dean of the medical faculty.

Dr. Paul Mulzer, professor of dermatology at Hamburg, has been made an honorary member of the Dermatological Society of Athens, and Professor Rollier of Leysin and Dr. Axel Reyn of Copenhagen honorary members of the German Society for Light Investigation at Bremen.

Dr. Julio Bejarano y Lozano has been nominated the Director-General of Public Health in Spain.

The following appointments have recently been made in the French faculties of medicine: Dr. Robert Proust, professor of medico-surgical anatomy and operative technique in Paris; Dr. Paul Bonnet, professor of clinical ophthalmology at Lyons; and Dr. Morvillez, professor of pharmacy at Lille.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Transient Hemianopia after Bathing

Dr. R. E. M. Taunton (London, W.7) writes reporting the occurrence, whilst on holiday, of a transient left-sided hemianopia following bathing in a rough sea and being hit on the head with waves. On driving a car shortly afterwards it was found that only the half of each approaching car could be seen. The same applied to all objects. Normal sight returned within a few hours. He asks: Is this a frequent occurrence?

Income Tax

Locumtenent Work: Expenses

"R. R." has been engaged for a considerable time in locum work. He returned his "salary" in full and claimed the 5 per cent. commission as an "expense." The commission is paid to the local bureau. The deduction has been disallowed.

*** In our opinion the earnings of a locumtenent are properly assessed under Schedule D as professional profits, and not under Schedule E as the reward of employment. It is "employment" in a sense, but the circumstances are peculiar, and it is a recognized mode of carrying on the profession. If such earnings are assessed under Schedule E then a separate assessment should be made for each appointment—which is a *reductio ad absurdum* in many cases. If the assessment is made under Schedule D the expense of the commission is allowable, as, of course, in equity it ought to be.

Purchase of Practice—First Year

"K. S. T." was employed as an indoor assistant for the year to April, 1932. He purchased a practice in August, 1932. On what basis should he be assessed for the year to April, 1933?

*** The change from employment as an assistant to practising on his own account necessitates breaking away from the "previous year" basis so far as the latter earnings are concerned, and they must be regarded, so far as "K. S. T." is concerned, as arising from a practice set up and commenced by him in August, 1932.

Liability of Foreign Residents

"Overtaxed" asks whether British securities are exempt from income tax when the income therefrom belongs to a foreign resident.

*** The answer is in the negative, except as regards interest on the British Government 5 per cent. Loan, which has now been converted into a 3½ per cent. security.

LETTERS, NOTES, ETC.

Tinct. Ferri Perchlor. in Chronic Anaemias

Surgeon Lieutenant Commander ALFRED REES PRICE, R.N. (ret.) (Oxton, Birkenhead), writes: May I be allowed to sponsor the protean value of the tinct. ferri perchlor. *B.P.* in the above condition and in many other conditions of generally impaired nutrition? I never give to adults less than ♏ xx of the *B.P.* preparation. More frequently I prescribe ♏ xxx thrice daily, freely diluted with chloroform water and given immediately after meals. In my experience in a mountainous quarry district of North Wales, with but little sunshine and a heavy rainfall, this particular form of anaemia was widespread. Whilst in practice in this locality I found tinct. ferri perchlor. infinitely superior to pil. Blaud (in huge doses) and to the scale preparations (also in large doses) as a curative agent. The pharmacological inertia—except in recent preparation—of pil. Blaud is well known. Tinct. ferri perchlor. given in the doses I advocate does not upset the digestion—it aids matters, improves appetite, and almost always produces a feeling of well-being. A great majority of the women examined had, in addition to their "adult anaemia," filthy mouths, and I maintain that tinct. ferri perchlor. definitely acted as an oral antiseptic of distinct value in these cases. The constipating effect of the tincture (not so marked, I think, as pil. Blaud) is met with a large dose of magnesium sulphate twice weekly, or combined with the mixture. I found equally good results of treatment in middle-aged male quarry workers suffering from anaemia with lassitude, loss of appetite, hypochondriasis, and generally a tinged outlook on life. To the men I never gave less than ♏ xxx three times daily. In conclusion, I suggest that tinct. ferri perchlor., in doses of not less than ♏ xx (more frequently ♏ xxx), thrice daily, rapidly alleviates the anaemias of adult women. It is equally effective in middle-aged men. It quickly relieves the "pain after food" symptoms of these cases, and brightens the outlook on life.

"Anacidity": A Protest

Dr. F. J. ALLEN (Shepton Mallet) writes: The word "anacidity" (*Journal*, August 5th, p. 238) should not be allowed to pass into general use without at least a protest from some of our profession, even though the protest be ineffective (or aneffective, as some may prefer to say). The proper word is, of course, "inacidity." Scientific authors of linguistic howlers are not slow to ridicule parallel cases where the unscientific writer flounders in the use of scientific terms. There is no need for the commission of such barbarisms as "anacidity." Everyone who wants to launch a new term should consult a specialist in etymology. If this had been done in the past the medical profession would have been saved from the stigma of inventing such terms as "anoci-association" (for innocu-association), "chemo-taxis" (for chemio-taxis), and "ptomaine" (for ptomatine or ptomine).

Charity Organization Society

We have received the following letter from the secretary of the Charity Organization Society: Both the central and district offices of this society receive a large number of inquiries from members of the medical profession in regard to institutions and other facilities available for the service of their less affluent patients—for example, convalescent homes, hostels for mothers and infants, training schemes for cripples, boarding out in the country, clinics and dispensaries, etc. The fact that we are so frequently consulted leads us to suppose that our services might be of use to other members of the medical profession who, not being aware of our existence, do not enjoy the convenience of the information we can supply. The society publishes annually a *Charities Register and Digest*, containing on 540 pages the particulars of several thousands of institutions. This is as comprehensive and up-to-date a record as we are able to make it of the institutions whose services are likely to be required for people in London and the South of England. As regular readers of your journal, however, we have some notion of the innumerable preoccupations of a practising physician, and realize that he has little or no time to refer to the pages of a book of reference of this kind. He would, we are sure, find it more expeditious to write or telephone to this office, or to the district office nearest him (*Telephone Directory*, p. 291), stating the information of which he is in need. Our staff are always delighted to reply to such queries, and are, in fact, constantly doing so.

High Blood Pressure

Dr. F. O. TAYLOR (Coldingham) writes: There is a cause for everything. "Essential high vascular tension" is a good term for the type of "pressure" which we cannot relieve even before the organs of the body show signs of wear-and-tear, which are bound to follow in time. Highly excitable people's pressures run up suddenly when they are enraged or excited—the rage is the cause of the symptom, not vice versa; and it is almost impossible to change a person's "nature." I am sorry not to see the name of my revered teacher—William Russell—in the bibliography appended to Sir Humphry Rolleston's paper (*Journal*, August 5th). His views are as sound to-day as they were thirty years ago, and many erroneous ideas could still be corrected by practitioners having an occasional refresher reading of Russell's little book—*The Sphygmometer: Its Value in Practical Medicine* (1921).

N.O.T.B. and the Care of the Eyes

The People's League of Health has recently had under consideration possible measures for securing reliable advice and treatment in the presence of visual and ocular disorders for members of the public whose economic position renders them unable to pay the usual fees of ophthalmic surgeons engaged in consulting practice. Among the proposals which have engaged the attention of the league is the scheme which is in operation under the direction of the National Ophthalmic Treatment Board, and the joint councils of the league have expressed their sympathy in the following resolution: "That the People's League of Health, being convinced of the importance of adequate care of the eyesight in the interests both of national and of personal well-being, and having carefully studied the methods at present existing to secure this end, earnestly commends to public attention the scheme of the National Ophthalmic Treatment Board, under which persons insured under the National Health Insurance Acts, their dependants, and other persons of like economic status, can obtain, for a small and inclusive fee, advice and treatment for visual or ocular disorders from a qualified medical practitioner, with spectacles, when these are required, dispensed by an expert optician."

Anaesthesia in Labour

Dr. JOHN ELAM (New Barnet) writes: As a result of my letter (*Journal*, August 12th, p. 316) I have received numerous inquiries as to the apparatus and the methods I use in gas and oxygen anaesthesia in labour. I intend to write more fully on this subject at a later date, but in the meantime it may be of use to mention that the apparatus is made by Messrs. Coxeter, 171, Pancras Road, London, N.W.1.

Occupational Diseases of the Skin—a Correction

We are indebted to Dr. JOHN C. BRIDGE, H.M. Senior Inspector of Factories, for a letter referring to our leading article on the above subject (*Journal*, August 19th, p. 340). He writes: At the sixth line from the top it is stated that as many as 15,000 cases of dermatitis due to industrial causes are certified every year by the factory surgeons of Great Britain. The correct figures of cases of compensation for dermatitis and ulceration of the skin produced by dust or liquids are as follows: 1928, 1,215; 1929, 1,456; 1930, 1,521; 1931, 1,352. Another point to which I would draw attention is the sentence beginning on the twelfth line from the end: "Anthrax has been stamped out by the institution of a disinfecting station where the imported raw materials, such as wool, hair, and hides, that harbour the spores of the bacillus, are regularly dealt with." Only certain classes of wool are disinfected at the disinfecting station, under an Order (a copy of which I enclose), from which you will see that compulsory disinfection is limited to goat hair produced in, or exported from or through, India, and all wool and animal hair produced in, or exported from or through, Egypt, including the Anglo-Egyptian Sudan. While it is true that at times other classes of wool, and sometimes hair, are disinfected at the disinfecting station, it is only on a voluntary basis and is not compulsory.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 36, 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *156*.